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# **Feasibility Report Appendixes**

**December 1991**

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## **American River Watershed Investigation, California**

### **VOLUME 8    -    APPENDIX T**



**US Army Corps  
of Engineers**

Sacramento District  
South Pacific Division

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# American River Watershed Investigation, California

## FEASIBILITY REPORT

### LIST OF APPENDIXES

#### Volume 1

- A PERTINENT CORRESPONDENCE
- B PLAN FORMULATION
- C ECONOMICS
- D WATER SUPPLY NEEDS
- E LAND USE

#### Volume 2

- F CULTURAL AND PALEONTOLOGICAL RESOURCES
- G SECTION 404 EVALUATION
- H RECREATION
- I PERTINENT DATA ON FOLSOM DAM AND AUBURN PROJECT
- J DAMSITE SELECTION
- K HYDROLOGY
- L RESERVOIR REGULATION

#### Volume 3

- M GEOTECHNICAL INVESTIGATIONS

#### Volume 4

- N DESIGNS AND COST ESTIMATES

#### Volume 5

- O REAL ESTATE
- P ENDANGERED SPECIES
- Q INUNDATION IMPACT ANALYSIS
- R INCREMENTAL ANALYSIS

#### Volume 6

- S - PART 1 FISH AND WILDLIFE COORDINATION ACT REPORT  
(Main Report, Auburn Area)

#### Volume 7

- S - PART 2 FISH AND WILDLIFE COORDINATION ACT REPORT  
(Lower American River, Natomas Area)

#### Volume 8

- T COMMENTS AND RESPONSES



**American River Watershed Investigation,  
California**

**APPENDIX T**

**Comments and Responses**

## PREFACE

The draft American River Watershed Investigation report was completed in April 1991 and mailed to all governmental agencies, organizations with a stated interest, and requesting individuals. The public review of the draft feasibility report began on April 5, 1991 and concluded on June 14, 1991. Comments were submitted by letter, or at one of three public hearings. During this period, 15 public workshops (presentations followed by a question-and-answer period) were held in different locations within the study area.

The logistics of responding to over 2,000 comment letters required developing a categorization system to permit preparation of responses which would address groups of similar comments. Individual comments have been assigned identifying numbers, and persons wishing to locate the responses to their particular comments in this appendix will be able to do so by cross-referencing with the index.

Seventy subject categories were established to facilitate the response process. A listing of these subject categories can be found in the Table of Contents. Every effort has been made to respond to the comments as submitted; however, it is important to understand that the information provided in the Response to Comments Appendix will not be nearly as thorough as the discussions that are presented in the report. Typically, a response attempts to capsulize the essence of the discussion without going into the full detail. Then, a reference is given to the section of the report where this issue is explained further. Often a point that is discussed with only a sentence or two in the Response to Comments Appendix will be discussed for several pages in the report itself, and it would be beneficial to the reader to also read the detailed version. Further, there has been a substantial amount of information added to the report since the draft report, hopefully written in a clearer way so that the report text will help respond to the commentors' questions.

The Corps received comments from approximately 2,000 respondents, who submitted more than 5,000 comments. Each letter, or hearing comment, was treated equally in generating a response. The original letters are on file in the Corps' Sacramento District. A statistical breakdown of these letters is included in this Appendix.

Comment tracking was done using the Q & A database software program. Letters were assigned unique control numbers for tracking purposes and record management. The data entry form provided for five comments for each control number assigned. If a letter had five or less comments, it was assigned one control number. If a letter had in excess of five comments, it was assigned multiple control numbers. The control number is unique to the letter the comment came from, not the comment itself. For example: John Doe sent in a letter with three comments and his letter was assigned

control number "22". Therefore, there will be three comments prefaced with the control number "22" in the database.

This Appendix is included to provide documentation of the public involvement process and satisfy the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements for disclosure of this process. Neither NEPA nor CEQA provides specific guidelines on this process; however, public involvement is incorporated as an integral part of project planning.

# AMERICAN RIVER WATERSHED INVESTIGATION, CALIFORNIA

## RESPONSES TO COMMENTS

### SUBJECT CATEGORIES

Item	Page
How to Use the Appendix.....	iii
Name Directory.....	1
Organization Directory.....	105
Alternatives	
100-year (FEMA) Levee Alternative.....	110
100-year (FEMA) Levee/Storage.....	113
100-year (FEMA) Storage Alternative.....	115
150-year Alternative.....	116
200-year Alternative.....	118
400-year Alternative.....	119
Additional Upstream Storage.....	122
Aggregate Extraction.....	125
Agricultural/Prime and Unique Farmlands.....	133
Air Quality.....	137
Borrow Areas - Natomas.....	143
Common Form Comment.....	144
Cost.....	147
Cultural Resources.....	171
Economics.....	182
Editorial.....	199
Efficient Use of Folsom.....	212
Endangered Species.....	221
Enlarge Folsom.....	229
EO 11988.....	230
EO 11990.....	232
Fisheries.....	233
Fisheries - Lower American.....	236
Fisheries - Upper American.....	242
Folsom Reoperation.....	245
Hazardous and Toxic Waste.....	254
Highway 49 Relocation.....	260
Hydrology.....	265
Internal Drainage.....	291
Inundation Frequency.....	294
Land Use - General.....	297
Legal Compliance.....	301
Level of Protection.....	318
Minimum Pool Dam.....	327
Mitigation.....	328
Mitigation - Lower American.....	340
Mitigation - Natomas.....	343
Mitigation - Upper American.....	350
Multi-purpose Dam.....	358

	Page
Natomas Land Use.....	392
Natomas Protection Alternatives.....	394
No Action Alternative.....	395
No Dam.....	397
Noise.....	403
Operational Criteria of Gates.....	407
Outlet Works (Gates).....	413
Paleontological Resources.....	415
Plan Formulation.....	416
Project Purpose.....	515
Real Estate.....	523
Recreation - Lower American.....	525
Recreation - Natomas.....	531
Recreation - Upper American.....	534
Section 404 - (B) (1)/Jurisdictional Wetlands.....	554
Seismicity.....	563
Sloughing and Sedimentation.....	571
Socioeconomics.....	580
Surcharge Space.....	584
Traffic - Auburn.....	585
Traffic - Natomas.....	587
Traffic - Upper American.....	589
Upper Canyon Growth Issue.....	591
Upper American Land Use.....	593
Visual Impacts.....	595
Water Supply Needs.....	603
Water Quality.....	608
Water Quality - Natomas.....	614
Water Quality - Upper American.....	616
Wildlife/Vegetation - Lower American.....	620
Wildlife/Vegetation - Natomas.....	626
Wildlife/Vegetation - Upper American.....	629

## HOW TO USE THE APPENDIX

This appendix has categorized comments by subject (a listing of the subjects can be found in the Table of Contents). Some comments did not fit neatly into one specific subject category, especially if the comment addressed several issues. In those cases, comments were generally categorized under what was considered the major point of the comment. Regardless of how they were categorized, each comment was given equal attention in generating a response.

Not all comments warranted an individual response; therefore, your comment may be grouped with others of a similar nature addressed by one response.

If you made comments on the draft feasibility report and wish to see how your comments were responded to, the process is as follows:

- (1) Consult the directory listing.
- (2) Find your name (This directory lists persons not organizations).
- (3) Find the control number(s) assigned to you.
- (4) Note the subject category or categories under which your comments were classified.
- (5) Go to the Table of Contents for the Comment/Response section.
- (6) Go to the page number(s) of your subject category or categories.
- (7) Your control number will appear in those sections  
(Note: It is possible for your control number(s) to appear more than once but not more than five times within any one subject category).
- (8) Your comment and response (found in bold type) will follow your control number.

A graphic depiction of this process can be found on the following page.

If you are a member of an organization and wish to see how your comments were responded to, consult the listing of organizations that follows the alphabetical name listing. Find your organization. Note the name that follows the listing. Using that name, follow the above listed steps to locate the responses.

# How To Use Appendix T Comment & Responses

(For The Private Citizen \*)

① Go to the Directory Listing

Appendix T Table of Contents				
Directory Listing				
Subject Categories				

② From Directory Listing Find Your Name

Directory				
Last Name	First Name	Control Number	Subject	
Doe,	John	1529, 1530	Plan Form.	Seismicity

③ From Directory Listing Find Control Numbers Assigned to You

Directory				
Last Name	First Name	Control Number	Subject	
Doe,	John	1529, 1530	Plan Form.	Seismicity

④ Note the Subject Categories Under Your Name

Directory				
Last Name	First Name	Control Number	Subject	
Doe,	John	1529, 1530	Plan Form.	Seismicity

⑤ From Table of Contents Find Where Your Subject Categories are Located in the Appendix

Appendix T Table of Contents		
Directory Listing		
Subject Categories		

⑥ Go to Page Number of Your Subject Categories

Appendix T Table of Contents		
Directory Listing		
Subject Categories		

⑦ Find Your Control Numbers to Locate Your Comments & Responses

_____
_____
_____

\* To Locate Agency Comments See Textual Description Of How To Use The Appendix

Last name	First name	Contr Numbe	Subjects
	Cam	319	No Dam; Level of Protection
	Roderick	493	Project Purpose
	Craig	950	Recreation - Upper American
	John	1161	No Dam
	Charles	1309	No Dam
	Jennifer	1754	Plan Formulation
	Ben	2063	Cost
		2085	
Abdul	Tania	127	No Dam
Abrahamson	Margie	821	Plan Formulation; NRA
Abrams	Miriam	1570	Common Form Comment
Acheson	Dean	91	NRA; No Dam
Acheson	Patricia	622	No Dam; Cost; NRA
Ackerman	Leslie	1157	Aggregate Extraction; Cost
Adamovich	Robert	1541	Multi-purpose dam
Adams	Julian	274	No Dam; Cost; NRA
Adams	Ed	488	Wildlife/Vegetation - Upper American; Cost; 100-Year (FEMA) Levee/Storage
Adams	Mark	1903	Operational Criteria of Gates; Plan Formulation; Aggregate Extraction; Upper Canyon Growth Issue; Recreation - Upper American
Adams	Mark	1904	Wildlife/Vegetation - Upper American; Aggregate Extraction; Inundation Frequency; Project Purpose
Aguilar	Joe	530	No Dam
Aitken	Robert	1550	Multi-purpose dam
Aitkens	Ralph/Barbara	1302	Multi-purpose dam
Akahoshi	Ruth	959	No Dam; Cost; NRA; Level of Protection
Akeson	Steve	437	No Dam; NRA



Last name	First name	Contr Numbe	Subjects
Akka	Dorie	1063	No Dam
Albrecht	Theodore J.	2	Mitigation - Natomas; hydrology; Editorial
Albrecht	Alan/Glynis	1358	Common Form Comment
Albright	Jerry	1608	Plan Formulation
Alder-Goldsmith	Robin/Daniel	812	Recreation - Upper American
Alessandri	Joseph	1180	Plan Formulation; Water Supply Needs; 400-Year Alternative
Allan	Eileen	167	No Dam; NRA; Plan Formulation
Alstrand	Eric	1734	Common Form Comment
Alvarez	M. Tim	379	Common Form Comment
Amerine	Myron	339	Common Form Comment
Anderson	M.J.	184	NRA; No Dam
Anderson	Amy	298	No Dam; Cost
Anderson	Eric	490	No Dam; 100-Year (FEMA) Levee; Project Purpose
Anderson	Stacy	522	Common Form Comment
Anderson	Terry	916	Wildlife/Vegetation - Upper American; Plan Formulation; Cost; Natomas Growth Issue; Project Purpose
Anderson	Clifford	1031	No Dam; NRA
Anderson	Catherine	1123	Recreation - Upper American
Anderson	Craig	1182	Project Purpose; Efficient Use of Folsom; Plan Formulation
Anderson	Craig	1183	Level of Protection; Cost; Plan Formulation
Angell	Barry	450	Common Form Comment
Anonymous		518	No Dam
Anonymous		551	No Dam
Anonymous		1162	No Dam; Recreation - Upper American
Anonymous		1310	No Dam

Last name	First name	Contr Numbe	Subjects
Anonymous		1334	No Dam
Anonymous		1382	No Dam; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Anonymous		1519	No Dam
Anonymous		1605	No Dam
Anonymous		2037	No Dam; Cost
Aoki	Darlene	1228	No Dam; Wildlife/Vegetation - Upper American
Aram		769	No Dam
Arentz	Christopher	282	No Dam
Argyris	Nancy	410	No Dam; Wildlife/Vegetation - Upper American; Natomas Growth Issue
Armstrong	Scott	1644	Common Form Comment
Arnett	Valerie	1221	No Dam; Cost
Arnold	John	307	No Dam; Cost; Plan Formulation
Arnold	Bruce	1203	Multi-purpose dam; Water Supply Needs; Visual Impacts; Recreation - Upper American
Aroyan	Janine	1684	Recreation - Upper American; Common Form Comment
Artman	Jean	1706	Common Form Comment
Atkinson	Tom	1920	400-Year Alternative; Level of Protection
Attie	Michael	1615	NRA; No Dam
Atton	Fred	135	No Dam; Recreation - Upper American
Atwell	Michael	189	Common Form Comment
Austin	Codie	564	No Dam
Auswrit	H. Ross	779	Multi-purpose dam
B.	J.	1002	No Dam
Babst	Gordon	1650	No Dam; Aggregate Extraction; NRA; Efficient Use of Folsom

Last name	First name	Contr Numbe	Subjects
Badde-Graves	Jennifer	455	No Dam
Bade	Anne	1343	Water Supply Needs
Bade	Alan	1823	Plan Formulation; Operational Criteria of Gates; EO 11990
Bade	Alan	1824	Legal Compliance; Plan Formulation; Aggregate Extraction; Water Quality - Upper American
Bade	Alan	1825	Aggregate Extraction; Highway 49 Relocation; Visual Impacts; Efficient Use of Folsom
Bade	Alan	1826	Plan Formulation; Wildlife/Vegetation - Upper American; Cultural Resources; Common Form Comment
Bade	Alan	1827	Plan Formulation; No Dam; Cost; Project Purpose
Bade	Alan	1828	Project Purpose; Outlet Works (Gates); Wildlife/Vegetation - Upper American; EO 11988; Mitigation - Indirect Impacts
Bade	Alan	1921	Plan Formulation; Inundation Frequency; Outlet Works (Gates);
Bade	Alan	1922	EO11988; Aggregate Extraction; Mitigation - Upper American; Cost
Bade	Alan	1923	100-Year (FEMA) Levee/Storage; NRA; Plan Formulation; Multi-purpose dam
Baesch	Andrew	535	No Dam
Baer	Malea	537	No Dam; NRA
Bahning	Tom	870	No Dam; Plan Formulation
Bailey	Elena	802	Visual Impacts; Cultural Resources
Bain	Gretchen	1704	Common Form Comment
Bainbridge	Linda	478	Common Form Comment
Baird	Art	1185	Cost; Level of Protection; Seismicity; Mitigation - Upper American
Baird	Art	1186	Wildlife/Vegetation - Upper American; Mitigation - Natomas; Plan Formulation; Folsom

Last name	First name	Contr Numbe	Subjects
			Reoperation
Baker	Kimberly	976	No Dam; Plan Formulation; Cost
Baker	Roy	1727	Common Form Comment
Bakewell	Robert	467	Plan Formulation
Baldinger	Ethan	1331	No Dam
Baldock	Jeny	100	Multi-purpose dam
Baldock	Hallie	631	Multi-purpose dam
Baldwin	Guy	1484	Common Form Comment
Ball	Jonathan	798	Plan Formulation
Ballance MD	Lee C.	8	Level of protection; Recreation - Upper American; No dam
Ballard	Tracy	903	No Dam; Recreation - Upper American
Ballentine	Colleen	840	No Dam
Bamberger	Chris	897	Common Form Comment
Bamkamp	Cathie	554	No Dam
Bannister	Brandi	1008	No Dam; Wildlife/Vegetation - Upper American
Bantum	Charles	591	Plan Formulation; Economics; NRA; Recreation - Upper American
Barber	George	1868	Plan Formulation; Multi-purpose dam; Legal Compliance; Water Supply Needs
Barcroft	Dolores	1318	No Dam
Bardis	Christo	142	400-Year Alternative
Barker	Boana	12	No dam
Barlett	William	42	No dam; NRA
Barnes	Laurie	360	No Dam; Plan Formulation
Barrantes	Marco	1449	NRA; No Dam
Barron	Michelle	1386	No Dam; Recreation - Upper American
Barry	James	306	Recreation - Upper American; Wildlife/Vegetation - Upper

Last name	First name	Contr Numbe	Subjects
			American; Cost; Multi-purpose dam
Barstow	Ellen	987	No Dam; Cost; Wildlife/Vegetation - Upper American
Bassett	John	462	No Dam
Bassett	Deanna	1349	No Dam
Bassette	Norman/Janet	1300	Common Form Comment
Basye	George	1113	400-Year Alternative; Plan Formulation
Baxter	David	30	Cost
Baxter	David	471	No Dam; Recreation - Upper American
Beans	Steve	1448	100-Year (FEMA) Levee/Storage
Bear	Cory	1498	No Dam
Bearson	Dann	632	No Dam; NRA; Recreation - Upper American
Beaton	Mary	109	No Dam
Beatty	J.	1477	Common Form Comment
Beausoleil	Daniel/Claudia	1073	Common Form Comment
Becker	Gordon	1569	Water Quality - Upper American; Visual Impacts; Air Quality; Plan Formulation; Natomas Growth Issue
Becker	Jesse	1951	Editorial; Plan Formulation; Highway 49 Relocation; Wildlife/Vegetation - Upper American; Natomas Growth Issue
Becker	Jesse	1952	Cultural Resources; Natomas Growth Issue; Air Quality; Editorial; Wildlife/Vegetation - Upper American
Becker	Jesse	1953	Editorial; Socioeconomics; Water Quality - Natomas
Becker	Jesse	1954	Mitigation; Plan Formulation; Legal Compliance
Becker	Jesse	1955	Plan Formulation; Mitigation - Lower American; Legal Compliance
Bedent	Bernard	729	No Dam; Wildlife/Vegetation - Lower American; Cultural Resources

Last name	First name	Contr Numbe	Subjects
Beebe	Diane	527	No Dam; NRA
Beesley	Michael	1058	No Dam
Bell	Cynthia	15	Cost; water supply needs; level of protection; Project purpose; Endangered Species
Bell	Nicole	346	No Dam; Wildlife/Vegetation - Upper American; Plan Formulation
Bell	Louise	592	Common Form Comment; Cost; Plan Formulation
Bell	Cassidy	684	Wildlife/Vegetation - Upper American; Cost; NRA
Bell	Barbara	811	No Dam; Recreation - Upper American
Bell	David	930	No Dam
Bell	L. Mandros	1062	100-Year (FEMA) Levee/Storage
Bell	Larry	1323	Plan Formulation
Belz	John	776	No Dam; NRA
Bennett	Laura	1538	Common Form Comment
Bennett	Stan	1795	Common Form Comment
Benowitz-Fred erics	Carson	1397	Multi-purpose dam
Berridge	Thomas	1328	Cost; NRA; 100-Year (FEMA) Levee/Storage
Berry	Mark	31	Cost; Level of Protection; Seismicity
Berry	Kim	605	Plan Formulation; Project Purpose; Highway 49 Relocation
Besan	Michelle	949	No Dam; Wildlife/Vegetation - Upper American
Bezik	Kristi	869	No Dam; Plan Formulation
Biavashchi	Noah	432	No Dam
Bielik	Steve/Nancy	1444	No Dam
Biglione	F. Thomas	358	Plan Formulation.
Billingsly	Joycelyne	881	NRA

Last name	First name	Contr Numbe	Subjects
Bilsland	Randall	954	Cost; No Dam; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Bingham	Portia	1223	No Dam; Visual Impacts
Bingham	Weelock	1394	No Dam; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Binkley	Thad	1672	Common Form Comment
Bird	June	627	No Dam; Cost; Wildlife/Vegetation - Upper American
Bishop	Dale	521	No Dam; Recreation - Upper American; NRA;
Bjazevich	Nicholas	444	No Dam; Recreation - Upper American
Blaise	Sharlane	911	Common Form Comment; Cost
Blanchetti	Sarah	1631	Common Form Comment
Blasingame	Donna	1053	No Dam; NRA
Blayik	Laure	984	Cost; Project Purpose; No Dam
Bley	Jason	104	NRA; Plan Formulation
Bloom	Richard	1572	Common Form Comment
Blue	Amanda	1410	Recreation - Upper American; No Dam
Bobbitt	Dorothy	147	No Dam
Boesel	John	89	No Dam; Cost; Level of Protection
Bohannon	Chris	1907	400-Year Alternative; Wildlife/Vegetation - Upper American; Fisheries - Lower American; Cost
Bohner	W.	1159	No Dam; Plan Formulation; Economics
Boletus	John	119	No Dam; Recreation - Upper American; Wildlife/Vegetation - Upper American
Bollock	Steven	508	Operational Criteria of Gates; Common Form Comment
Bond	Joann	341	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Bontadelli	Pete	2066	Fisheries; Wildlife/Vegetation - Upper American; Fisheries -Upper American
Bontadelli	Pete	2067	Wildlife/Vegetation - Upper American; Water Quality - Upper American; Recreation - Upper American
Bontadelli	Pete	2068	Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Lower American; Wildlife/Vegetation - Natomas
Bontadelli	Pete	2069	Internal Drainage; Water Quality - Natomas; Endangered Species; Mitigation; Wildlife/Vegetation - Upper American
Bontadelli	Pete	2070	Mitigation; Legal Compliance
Borcalli	Francis	2123	Economics, Plan Formulation
Borden	Eric	1393	No Dam; Recreation - Upper American
Borman	David	245	No Dam
Bostian	Howard	1797	Common Form Comment
Bourguignon	Ann	413	No Dam; Cost
Bovan	Pat	1312	No Dam
Bower	P.	226	No Dam
Bower	Alex	620	No Dam
Bowers	Jack	1229	Multi-purpose dam
Bowler	Maurice	1036	Multi-purpose dam
Bowlin	Pat	686	No Dam; Economics; Plan Formulation
Bradbury	V.	547	No Dam
Bradley	Andrea	858	Project Purpose
Bradshaw	Carolyn	2051	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
Bradus M.D.	Richard	1699	No Dam; 100-Year (FEMA) Levee/Storage; NRA; Cost
Brady	Shannon	1086	Wildlife/Vegetation - Upper



Last name	First name	Contr Numbe	Subjects
			American
Brandish	David	973	No Dam; Level of Protection; 100-Year (FEMA) Levee/Storage
Brandos	Scott	558	No Dam; Cost; Economics
Brandos	Christina	563	No Dam; Plan Formulation
Brandos	Scott	1521	Cost; Level of Protection; 100-Year (FEMA) Levee/Storage
Brandy	M.	25	Plan formulation
Brannan	Tanya	470	No Dam; Natomas Growth Issue
Bratton	Jane Ann	90	No Dam; Project Purpose; NRA; Cost
Braun	Ted	868	No Dam; Visual Impacts
Breinhorst	Mark	559	No Dam
Breton	Kim	423	No Dam
Bretz	Richard	1529	No Dam; Natomas Growth Issue; Water Supply Needs; Recreation - Upper American; Wildlife/Vegetation - Upper American
Brickel	Debbie	2034	Level of Protection; Multi-purpose dam; Plan Formulation; NRA
Bridges	George	241	Cost; Level of Protection; 100-Year (FEMA) Levee/Storage; Wildlife/Vegetation - Upper American; Recreation - Upper American
Bridges	George	242	Aggregate Extraction; Seismicity
Brikel	Debbie	1892	Level of Protection; Visual Impacts; Multi-purpose dam; No Dam
Brikel	Debbie	1893	NRA; Wildlife/Vegetation - Upper American; Recreation - Upper American
Brinkman	Derek	238	No Dam; Recreation - Upper American; Cost; NRA
Brinkman	Derek	526	No Dam; NRA; Water Supply Needs
Briskin	John	131	Multi-purpose dam
Brock	Charles & Mary	37	Cost

Last name	First name	Contr Numbe	Subjects
Brock	Charles	126	NRA; No Dam; Plan Formulation;
Brody, M.D.	Maugault	623	NRA; Plan Formulation; Wildlife/Vegetation - Upper American
Brommeland	Jon	670	Common Form Comment
Bronson	Greg	1886	Plan Formulation
Brooks	Lea	338	Common Form Comment
Brown	Marcus	417	No Dam; Cost; Natomas Growth Issue; Efficient Use of Folsom; Recreation - Upper American
Brown	Michael	427	Multi-purpose dam; Wildlife/Vegetation - Upper American; Economics; Wildlife/Vegetation - Lower American
Brown	R.	546	No Dam; Cost
Brown	Craig	1217	Wildlife/Vegetation - Upper American
Brown	Ann	1455	Common Form Comment
Brown	Helen	1794	Common Form Comment
Brubaker	Sherie	1025	Common Form Comment; Seismicity
Brumfield	Charles	390	Common Form Comment
Brunetti	Kevin	2045	Wildlife/Vegetation - Upper American; Cost; Cultural Resources
Bryant	Wayne	810	NRA; Plan Formulation
Bryant	Lisa	2035	No Dam; Wildlife/Vegetation - Upper American; Cost; Operational Criteria of Gates; 100-Year (FEMA) Levee/Storage
Brysainn	Tarig	593	No Dam; NRA
Buchanan	James	1177	Multi-purpose dam
Bucher	Greg	433	Water Supply Needs
Buckley III	Daniel	1642	Common Form Comment
Buckley III	Daniel	1885	Cost; Natomas Growth Issue; Project Purpose
Bullard	Charles	2021	Plan Formulation; Cost; Natomas

Last name	First name	Contr Numbe	Subjects
			Land Use; Mitigation - Upper American
Bullard	Charles	2022	Wildlife/Vegetation - Upper American; Plan Formulation; Multi-purpose dam
Bullard	Charles	2023	Plan Formulation; Cost
Burdette	Dale	678	Plan Formulation; Cost; Aggregate Extraction; Highway 49 Relocation; Wildlife/Vegetation - Upper American
Burford	Martha	111	Project Purpose; Legal Compliance; Seismicity
Burger	John	861	Multi-purpose dam; Plan Formulation
Burle	Judith	2039	No Dam; NRA
Burton	N.C.	303	Common Form Comment
Bush	K.	1687	Common Form Comment
Byans	Kip	1462	100-Year (FEMA) Levee/Storage
Bystroff	J.	533	No Dam
Cadagan	Jerry	1718	Common Form Comment
Caldwell	Sheila	1747	100-Year (FEMA) Levee/Storage; NRA; Cost
Callenbach	Ernest	630	No Dam; Recreation - Upper American
Callnon	John	137	Cost; Plan Formulation
Campbell	Keith	876	No Dam; Project Purpose
Campbell	Robert	1039	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Campbell	Simone	1731	No Dam; Plan Formulation
Campbell	David	2150	No Dam; Plan Formulation
Campbell	David	2151	100-Year (FEMA) Levee/Storage; Economics
Campbell	David	2152	Plan Formulation; Legal Compliance
Campbell	David	2153	Level of Protection; Plan Formulation; Natomas Protection Alternatives

Last name	First name	Contr Numbe	Subjects
Campbell	David	2154	Plan Formulation; Economics
Campbell	David	2155	Economics
Campion	Mariolo	1337	Common Form Comment
Campo	Lisa	1273	Common Form Comment
Cantey	Paul	287	Plan Formulation; 100-Year (FEMA) Levee/Storage; Cost
Capaul	Bruce	2087	Multi-purpose dam
Capoblanco	Janice/Kerry	1665	No Dam; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Careon	Harriet	1249	No Dam; Cost
Carey	Jeanne	978	No Dam; Project Purpose
Carlson	John	1531	No Dam; Natomas Growth Issue; Water Supply Needs; Recreation - Upper American; Wildlife/Vegetation - Upper American
Caro	Martin	155	No Dam
Carothers	Merla	70	Common Form Comment
Carroll	Melisa	952	No Dam
Carter	Geoff	309	No Dam; Wildlife/Vegetation - Upper American
Casavant	Donald	381	Common Form Comment
Case	Sid	831	No Dam; Wildlife/Vegetation - Upper American
Case	Irene	1013	Common Form Comment
Casey	Charles	1198	Plan Formulation; Efficient Use of Folsom
Casey	Charles	2263	Plan Formulation
Casey	Charles	2264	Wildlife/Vegetation - Upper American; Mitigation - Upper American; Plan Formulation; Cost
Casey	Charles	2265	Hydrology; Visual Impacts; Mitigation - Upper American
Casey	Charles	2266	Sloughing and Sedimentation; Aggregate Extraction; Mitigation -

Last name	First name	Contr Numbe	Subjects
			Upper American
Casey	Charles	2267	Visual Impacts
Casilly	William	1439	No Dam; NRA
Castellano	Jay	1344	Plan Formulation
Castellano	Susan	1345	Plan Formulation
Catino	Michael	1875	Plan Formulation; Level of Protection; Water Supply Needs; Fisheries - Lower American; Recreation - Upper American
Catino	Michael	1876	Cost
Caulfield	Andy	1429	No Dam; Wildlife/Vegetation - Upper American
Cauness	Gregory	1683	No Dam; Plan Formulation
Cavallo	Sharon	1915	Multi-purpose dam; 100-Year (FEMA) Levee/Storage; Natomas Growth Issue; Natomas Land Use
Cavallo	Sharon	1916	Multi-purpose dam; Inundation Frequency; Aggregate Extraction; NRA; Plan Formulation
Cavallo	Sharon	1917	Seismicity; Multi-purpose dam; Visual Impacts; Natomas Growth Issue; No Dam
Cawthton	N.	1234	No Dam; Recreation - Upper American
Cerridwen	Andresta	1601	Common Form Comment
Cesarello	Monica	1001	Recreation - Upper American; Wildlife/Vegetation - Upper American; Cost
Chanin	Steven	1028	No Dam; Cost; Plan Formulation; NRA
Chapman	Carol	48	No Dam; Plan Formulation; NRA
Charron	Alinya	2043	No Dam
Charronus	Thomas	1085	NRA
Chavez	Jose/Luz	734	Common Form Comment
Chavez	Ernie	956	Level of Protection; Wildlife/Vegetation - Upper American; Cost

Last name	First name	Contr Numbe	Subjects
Cherkas	Manny	849	No Dam; NRA
Cherkas	James	1329	No Dam
Cherner	Beverly	207	No Dam; Project Purpose
Chesney	Robert	258	Common Form Comment
Chesney	Pamela	1666	100-Year (FEMA) Levee/Storage; No Dam; Natomas Growth Issue
Chevalier	Dorothy	725	Common Form Comment
Childs	Hal	1630	Common Form Comment
Chin	Dale	685	Level of Protection; Cost; Recreation - Upper American; Plan Formulation
Chin	Michael	752	Recreation - Upper American; NRA; Plan Formulation
Chipping	David	439	Plan Formulation; Wildlife/Vegetation - Upper American; NRA; Wildlife/Vegetation - Natomas
Choi	Ted	795	No Dam; Plan Formulation
Chon	Micheline	1057	NRA
Chow	Dave	1506	NRA
Christensen	Jack	855	Project Purpose; Level of Protection
Christensen	Jacki/James	1459	No Dam
Christoph	Megan	901	Common Form Comment
Christopher	Linda	1514	Cost; Plan Formulation
Chroniak	Steve	775	Common Form Comment; Cost
Chu	Amy	965	NRA
Chung	Tanya	918	Cost; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Chung	Derek	985	No Dam; Plan Formulation
Chung	Jo Ann	1216	No Dam; Wildlife/Vegetation - Upper American; Economics
Chung	Alicia	1698	Level of Protection; Cost; Wildlife/Vegetation -

Last name	First name	Contr Numbe	Subjects
			Upper American; Recreation - Upper American
Cion	Shira	1568	Common Form Comment
Cirill	Frank	2006	No Dam; Legal Compliance; Efficient Use of Folsom; Fisheries - Lower American; Folsom Reoperation
Cirill	Frank	2007	Efficient Use of Folsom
Cirill	Frank	2008	Plan Formulation; Folsom Reoperation; Legal Compliance
Cirill	Frank	2009	Legal Compliance; Efficient Use of Folsom
Cirill	Frank	2010	Plan Formulation; NRA; Folsom Reoperation
Clapp	Atlee	302	Common Form Comment
Clark	George	71	NRA; No Dam; Plan Formulation
Clark	David	609	No Dam; Cost; Plan Formulation
Claus	Mike	553	Wildlife/Vegetation - Upper American
Clear	Robert	1055	No Dam
Clemens	Dale	1281	No Dam
Clippinger	Tracy	704	No Dam; Level of Protection; Wildlife/Vegetation - Upper American
Cloud	Linda	162	No Dam; 100-Year (FEMA) Levee/Storage
Coburn	Shannon	524	No Dam; Recreation - Upper American
Cochran	Holly/Marty	418	Common Form Comment
Cochran	Susan	1546	100-Year (FEMA) Levee/Storage; NRA; Operational Criteria of Gates; Aggregate Extraction
Coffi	DeeDee	1567	Common Form Comment
Cohen	Harlene	1518	No Dam
Coho	Paul	1274	No Dam; Wildlife/Vegetation - Upper American

Last name	First name	Contr Numbe	Subjects
Colard	Charles	516	No Dam; Plan Formulation
Colbert	Jane	477	Common Form Comment
Colbert	Suzanne	699	No Dam; Cost
Colbert	Ted	1195	400-Year Alternative; NRA; Plan Formulation; Outlet Works (Gates)
Cole	Donald	1336	No Dam; 100-Year (FEMA) Levee/Storage
Cole	Michael	1696	Common Form Comment
Collet	Susan	1029	Common Form Comment
Collins	Michael	384	Common Form Comment
Colombo	Kimberly	1396	Wildlife/Vegetation - Upper American; Recreation - Upper American; Plan Formulation
Colombo	Paula	1816	Economics; 200-Year Alternative
Colsky	Justin	1404	No Dam; Wildlife/Vegetation - Upper American; Seismicity
Colter	Jon	677	Common Form Comment
Columbo	Danielle	1378	No Dam
Combest	Donnaly	1215	Common Form Comment
Commander, USCG		10	
Compost	Shaloam	297	No Dam
Connolly	Jean	1072	Common Form Comment
Cook	Dave	336	No Dam; Cost; NRA; Plan Formulation
Cook	Lewis	1400	400-Year Alternative
Cook	Daisy	2040	Common Form Comment
Cooley	Bea	1116	Plan Formulation; Cost;
Cooley	Bea	1117	Plan Formulation; Aggregate Extraction
Cooley	Bea	1118	Wildlife/Vegetation - Upper American
Cooper	Elizabeth	429	No Dam; NRA; Cost; Wildlife/Vegetation - Upper



Last name	First name	Contr Numbe	Subjects
			American
Coplan	Jill	977	Cost; No Dam; 100-Year (FEMA) Storage
Coppel	Frank	59	No Dam
Corban	W.R.	1662	No Dam; Operational Criteria of Gates
Cornett	Carolyn	710	No Dam; Recreation - Upper American; Seismicity
Cortotto	Stephen	95	Common Form Comment
Cosin	Wendy	230	Common Form Comment
Cost	Betty	1271	Common Form Comment; Operational Criteria of Gates
Cottingham	David	2127	Plan Formulation; Efficient Use of Folsom
Countryman	Joe	1193	400-Year Alternative; Plan Formulation; Multi-purpose dam
Courtney	James	747	Common Form Comment
Cowan	Sammye	615	No Dam; Wildlife/Vegetation - Upper American
Cowan	Brooke	1048	Wildlife/Vegetation - Upper American; Recreation - Upper American; NRA
Coyne	A.	246	No Dam; Level of Protection; NRA; Cost
Crabtree	Chris	724	Cost; Level of Protection; Efficient Use of Folsom
Crain	Chad	191	Seismicity
Crall	Jay	835	No Dam
Crandall	John	1458	Plan Formulation
Crane	David	770	Common Form Comment
Cranston	Peggy	656	Common Form Comment; Seismicity
Craven	Mike	877	Plan Formulation
Crawford	Doug	979	No Dam; Cost
Crawford	Richard	1806	Wildlife/Vegetation - Upper American; Water Quality - Upper

Last name	First name	Contr Numbe	Subjects
			American; Hazardous and Toxic Waste; Economics; Sloughing and Sedimentation
Crawford	Richard	1807	Hydrology; Plan Formulation; Hazardous and Toxic Waste
Cribb	Aric	1319	No Dam
Crist	Kelly	240	No Dam; Recreation - Upper American; NRA; Wildlife/Vegetation - Natomas; Water supply needs
Crist	Mary	782	Cost; Recreation - Upper American; NRA; Seismicity; Plan Formulation
Crist	Kathy	1895	Legal Compliance; Mitigation - Upper American; Level of Protection; Cost; Plan Formulation
Crist	Kathy	1896	Plan Formulation; Hazardous and Toxic Waste; Noise; Water Quality - Upper American; Air Quality
Crittenden	Casey	571	No Dam; Cost
Crooks	W.Y.	718	NRA; Recreation - Upper American; Cost; Level of Protection
Croughan	Kathryn	1125	Recreation - Upper American; Cost
Croughan	Matthew	1745	Plan Formulation
Cuevas	Ayana	84	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
Culp	Kim	1341	NRA
Cummings	David	1018	Common Form Comment
Cummings	Teresa	1232	Plan Formulation; Cost; NRA
Cummins	Kevin	371	Common Form Comment
Cupp	Ana	1466	Plan Formulation
Curtis	Wendy/Randy	1746	NRA; 100-Year (FEMA) Levee/Storage; Wildlife/Vegetation - Upper American
D'Addario	Jim	164	No Dam
D.	L.S.	1316	No Dam
Dagett	Veronica	1355	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Daggett	Tim	1168	Common Form Comment
Daggett	Judy	1473	Common Form Comment
Dahl	Andrew	103	Wildlife/Vegetation - Upper American; No Dam
Dahl	Craig	889	Economics; Operational Criteria of Gates; NRA
Dahle	Mike	790	Multi-purpose dam; Water Supply Needs; Fisheries - Lower American; Recreation - Upper American; Socio-economics
Daney	Jeanne	1482	Common Form Comment
Daniel	Anne	800	No Dam
Danielson	Kary	785	NRA; No Dam; Plan Formulation; Wildlife/Vegetation - Natomas
Danoun	Wajih	624	NRA; Cost; Plan Formulation
Darnhart	Kathy	1616	Common Form Comment
Daualy	Tamara	1766	Common Form Comment
Davey	Kit	657	Common Form Comment
David	Lauren	960	No Dam; Cost; 100-Year (FEMA) Levee/Storage; Level of Protection
David	Peggy	962	No Dam; Cost; Level of Protection; 100-Year (FEMA) Levee/Storage
David	Roger	964	No Dam; Cost; Level of Protection; 100-Year (FEMA) Levee/Storage;
David	Dan	1181	Visual Impacts; NRA; 400-Year Alternative
David, M.D.	John	673	Common Form Comment
Davidson	L.R.	896	Common Form Comment
Davidson	Carlos	1618	Cost; 100-Year (FEMA) Levee/Storage
Davies	Steven	202	Cost; Plan Formulation
Davis	Carol	640	Common Form Comment
Davis	Berna	839	Wildlife/Vegetation - Upper American; Plan Formulation
Davis	Devin	1364	Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
Davis	Gene	2054	Wildlife/Vegetation - Upper American; Water Quality - Upper American; Fisheries - Upper American; Sloughing and Sedimentation; Mitigation - Upper American
Davis	Gene	2055	Cost; Noise; Common Form Comment
Dawson	Tim	56	No Dam; Economics
Dawson-Germai n	Danette	1461	NRA
De La-O	Bonny	1360	Wildlife/Vegetation - Upper American; Cost; No Dam
De Los Santos	G.	1668	No Dam; Plan Formulation
De Mare	Robert	1702	100-Year (FEMA) Levee/Storage; Wildlife/Vegetation - Upper American
De Nicola	Tucker	1596	Common Form Comment
Deabueno	Joreen	375	Common Form Comment
Dean	Mark	1160	No Dam
Dear	Elizabeth	351	NRA; Cost; Plan Formulation
Deboede	Dan	1346	Plan Formulation
DeCampo	Macricio	1250	No Dam
Decio	Ken	276	No Dam; Level of Protection; Cost; 100-Year (FEMA) Levee/Storage; NRA
Decker	Juliette	1395	No Dam; Recreation - Upper American
Delfino	Frank	668	No Dam; EO 11990; NRA; Project Purpose
DeLuca	Tom	333	No Dam; Plan Formulation; NRA; Water Supply Needs
DeMayo	Nick	1380	400-Year Alternative
Denio	Ken	1722	Multi-purpose dam
Dennison	Sidney	1645	Multi-purpose dam
Dennison	Sidney	1887	Plan Formulation; Multi-purpose dam
Denzler	Sara	2053	Common Form Comment; Level of

Last name	First name	Contr Numbe	Subjects
			Protection; Seismicity; Operational Criteria of Gates
Deprile	Gavin	1729	No Dam; 100-Year (FEMA) Levee/Storage
Derasary	Margaretha	158	Common Form Comment
DeRiggi	Tony	1095	Cost; Plan Formulation; Aggregate Extraction
DeSilva	Glenn	1044	No Dam; NRA
Desmond	Deb	60	Common Form Comment
Desmond	Jenny	749	No Dam
Desmond	Richard	1278	No Dam
Desrochers	Deborah	746	Common Form Comment
Devasary	Lara	658	Common Form Comment
DeVries	Margretta	74	Level of Protection; Cost; Plan Formulation
Dewit	Kim	1803	Hydrology
Di Giorgio	Joe	1540	Multi-purpose dam
Diaz	Mario	898	Common Form Comment; Cost
Dieckilman	Anna/Kevin	1000	Cost; Recreation - Upper American; No Dam; Level of Protection; 100-Year (FEMA) Levee/Storage
Diener	Kathleen	967	Cost; No Dam; 100-Year (FEMA) Levee/Storage
DiGoede	Daniel	1220	Cost; Level of Protection
Dillon	Janet	1667	Cost; Wildlife/Vegetation - Upper American; NRA
Dirik	Akin	1137	No Dam; Cost; NRA; Wildlife/Vegetation - Upper American
Djuth	Gerald	1435	Seismicity; Operational Criteria of Gates; NRA; Cost
Dobbins	Corrine	1218	Wildlife/Vegetation - Upper American
Doherty	Amy	1385	No Dam; Wildlife/Vegetation - Upper American

Last name	First name	Contr Numbe	Subjects
Dohr	Mike	325	No Dam; NRA; Cost
Dokimos	Liz	449	400-Year Alternative; NRA
Dole	Malcolm	781	Common Form Comment
Dolnick	Dave	853	No Dam; NRA; Plan Formulation
Donahue	L	926	No Dam; Wildlife/Vegetation - Upper American; Cost
Donahue	Tim	2059	NRA; Plan Formulation; Cost; Level of Protection; Wildlife/Vegetation - Lower American
Doran	Bonnie	323	Common Form Comment
Dorf	Karen	606	No Dam; 100-Year (FEMA) Levee/Storage; Cost
Dorman	Edu	152	No Dam
Dorr	Bob	1869	Multi-purpose dam; Legal Compliance; Plan Formulation
Dorr	Bob	1870	Legal Compliance; Plan Formulation; Multi-purpose dam
Dorring	Angie	847	Project Purpose
Douglas	Gray	397	Common Form Comment; Seismicity; Cost
Dow	Georgia	377	Common Form Comment
Doyle	Dee	442	No Dam
Drago	Michael/Ginger	761	Common Form Comment
Drake	Barney	1767	Cost; 100-Year (FEMA) Levee/Storage; NRA; No Dam
Drake	Bill	2128	Recreation - Upper American; Aggregate Extraction; Cultural Resources; Inundation Frequency
Drake	Bill	2129	Recreation - Upper American
Dreher	Robert	2056	Legal Compliance
Dreher Dreher	Robert Robert	2057	Legal Compliance
Drekmeier	Peter	1535	Water Supply Needs
Driller	Angela	1639	Common Form Comment

Last name	First name	Contr Numbe	Subjects
DuBois	Bill	1189	Multi-purpose dam; Efficient Use of Folsom; Water Supply Needs
DuBois	Julie	1468	Common Form Comment
Dubreuil	Hillary	177	Common Form Comment
Dufait	Nicole	1544	No Dam; Wildlife/Vegetation - Upper American
Duffield	Dorothy	1167	NRA; No Dam
Dugal	Barbara	1580	Common Form Comment
Duggen	Tara	2033	No Dam; Seismicity
Dull	Jonathan	1071	Common Form Comment
Dunbar	Madonna	406	No Dam
Duncan	D.M.	688	Common Form Comment
Dunlap	J. Daniel	1863	No Dam; 100-Year (FEMA) Levee/Storage; Recreation - Upper American; NRA
Dunn	Jim	389	Wildlife/Vegetation - Upper American; No Dam; NRA
Dunn	Lucien	1043	Multi-purpose dam; Cost
Durkee	Albert	1629	Plan Formulation; 100-Year (FEMA) Levee/Storage
Durn	Kristen	570	NRA; Plan Formulation
Durst	Gerald	1227	Multi-purpose dam
Duryee PhD	Mary A.	9	Cost; Plan formulation; Recreation - Upper American; NRA
Dutra	A.J.	636	Multi-purpose dam
Dutton	John	1620	NRA; No Dam; 100-Year (FEMA) Levee/Storage
Dyer	Ruth	736	Common Form Comment
Dzurella	Steve	1527	No Dam; Natomas Growth Issue; Water Supply Needs; Recreation - Upper American; Wildlife/Vegetation - Upper American
Eade	Barbara	1474	Common Form Comment
Eagan	Kathleen	649	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Eakin	Ronald	569	No Dam
Eber	Lauren	1431	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
Eckberg	Steven	2026	Operational Criteria of Gates; NRA; Plan Formulation; 100-Year (FEMA) Levee/Storage; Cost
Eckhardt	Susan	929	Common Form Comment
Eckhardt	Michael	931	No Dam
Eckstrom	Donald	1184	400-Year Alternative; Cost
Edgrett	Charles/Marion	1303	Multi-purpose dam
Eding	Corrine	223	NRA; No Dam
Edwards	Robert	721	Common Form Comment
Edwards	Scott	1366	Cost; Recreation - Upper American; Wildlife/Vegetation - Upper American
Edwards	Linda	1613	No Dam; Seismicity; Water Supply Needs; Wildlife/Vegetation - Upper American; Recreation - Upper American
Edwards	Linda	1670	No Dam; 100-Year (FEMA) Levee/Storage
Edwards	Linda	1686	Common Form Comment
Eggleston	Alan	148	Sloughing and Sedimentation; Plan Formulation
Ehrman	Greg	969	Cost; 100-Year (FEMA) Levee
Elander	Eleanor	1021	Common Form Comment
Elder	J.W.	294	No Dam; Plan Formulation
Elder	Robert	464	Cost; Operational Criteria of Gates; Natomas Growth Issue
Elkin	Elizabeth	1471	No Dam; NRA; Cost
Elliot	Martha	1260	No Dam
Ellis	Carol	26	Natomas growth issue; Operational criteria of gates; Wildlife/Vegetation - Upper American; No dam



Last name	First name	Contr Numbe	Subjects
Ellison	Lorraine	887	No Dam; Plan Formulation
Elster	Gary	1075	No Dam; Recreation - Upper American; Cost; Project Purpose; NRA
Ely	Richard	1785	Common Form Comment; Plan Formulation
Enderle	Erick	435	No Dam
Eng	Nancy	234	NRA
English	Melissa	101	Recreation - Upper American; No Dam; Cost
Ensor	Myra	1354	Wildlife/Vegetation - Upper American
Eriken	S.K.	1460	No Dam
Erikson	Keith	1152	No Dam; Water Supply Needs; Plan Formulation
Erland	April	531	No Dam; Wildlife/Vegetation - Upper American
Erland	Sylvia	532	No Dam; Wildlife/Vegetation - Upper American
Erny	Ronald	97	Wildlife/Vegetation - Natomas
Ertel	Grace	507	Common Form Comment
Erwin	W.J.	743	Common Form Comment
Erwin	Tracy	1762	No Dam; 100-Year (FEMA) Levee/Storage
Esmon	Brent	750	Common Form Comment; Cost; Recreation - Upper American; Visual Impacts
Esmon	Pamela	1081	Common Form Comment
Esparza	Tonatihah	1321	NRA
Esser	Patty	1783	Common Form Comment
Estes	Gary	1889	Multi-purpose dam; Aggregate Extraction; Mitigation - Upper American; Wildlife/Vegetation - Upper American
Estes	Gary	1890	Mitigation; Plan Formulation
Estes	Gary	2146	EO 11988; Level of Protection;

Last name	First name	Contr Numbe	Subjects
			Editorial; Aggregate Extraction; Visual Impacts
Estes	Gary	2147	Aggregate Extraction; Recreation - Upper American; Mitigation - Upper American; Cost
Estes	Gary	2148	Mitigation; Cost
Estes	Gary	2149	Plan Formulation; Multi-purpose dam
Ettlenger	Mark	1052	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Evanichik	Julianna	220	NRA; No Dam
Evans	Arthur	271	Cost; NRA
Evans	Steve	1172	Efficient Use of Folsom; Plan Formulation; Cost
Evans	Steve	1173	Plan Formulation; Wildlife/Vegetation - Upper American; Cultural Resources; Recreation - Upper American; Operational Criteria of Gates
Evans	Steve	1174	Operational Criteria of Gates; Wildlife/Vegetation - Upper American; Aggregate Extraction;
Evans	Steve	1175	Mitigation - Upper American; Fisheries - Upper American; EO 11988; EO 11990; Cultural Resources
Evans	Steve	1176	Plan Formulation; Level of Protection; Project Purpose
Evans	Stephen	1741	Cost; 100-Year (FEMA) Levee/Storage; NRA; Wildlife/Vegetation - Upper American; Operational Criteria of Gates
Ezell	Scott	495	No Dam; Wildlife/Vegetation - Upper American; Cost
Fano	Leslie	1362	Level of Protection; Cost; Plan Formulation; No Dam
Faria	Amythest	426	No Dam; Recreation - Upper American
Farrell	Erin	722	No Dam

Last name	First name	Contr Numbe	Subjects
Farrell	Laura	1324	No Dam; NRA
Farren	Carol	315	Common Form Comment
Fausini	John	738	Common Form Comment
Fay Ph.D.	Leslie	1805	Paleontological Resources
Fein	David	1451	NRA; Level of Protection
Felce	Arthur	1485	Multi-purpose dam
Fentress	Michael	1700	Common Form Comment
Feraru	Anne	159	Plan Formulation; Cost; Aggregate Extraction; NRA;
Feraru	Robert	694	NRA; Plan Formulation; No Dam
Ferran	Cecily	1311	No Dam
Ferrara	Connie	509	No Dam
Ferroggiaro	Suzanne/Robert	895	Common Form Comment
Fidelibus	J.	586	No Dam; Cost
Fielder	Brian	1562	Common Form Comment
Finkelstein	Gerri	848	No Dam; Wildlife/Vegetation - Upper American; Plan Formulation
Finley	Gaylan	2048	Cost; Efficient Use of Folsom; NRA
Fiore	Hal	2132	Plan Formulation; Water Quality; Hazardous and Toxic Waste; Air Quality; Wildlife/Vegetation - Upper American
Fiore	Hal	2133	Cultural Resources; Natomas Land Use; Recreation - Upper American; Recreation - Natomas; Hazardous and Toxic Waste
Fiore	Hal	2134	Multi-purpose dam; Plan Formulation; Operational Criteria of Gates; Fisheries
Fiore	Hal	2135	Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Natomas; Plan Formulation; Mitigation - Upper American; Water Quality
Fiore	Hal	2136	Mitigation; Mitigation - Upper American; Mitigation - Natomas

Last name	First name	Contr Numbe	Subjects
Fiore	Hal	2137	Mitigation - Indirect Impacts; Cultural Resources; Natomas Land Use; Noise; Recreation - Natomas
Fiore	Hal	2138	Mitigation - Upper American; Socioeconomics; Mitigation; Water Quality
Fiore	Hal	2139	Mitigation;
Fischer	Mike	797	No Dam
Fischer	Ken	820	Plan Formulation; Cost
Fischer	Ken	1523	Recreation - Upper American; Multi-purpose dam; Aggregate Extraction
Fisher	Melissa	796	No Dam; Plan Formulation
Fisher	R.	1513	Multi-purpose dam
Fisher	John	1689	Common Form Comment
Fisk	Peter	1067	No Dam
Flannery	Anne	690	No Dam; Natomas Growth Issue; Water Supply Needs
Flores	Jennifer	1150	Plan Formulation; Cost; 100-Year (FEMA) Levee/Storage
Fluty	Mike	1867	Economics; Plan Formulation; Multi-purpose dam; NRA
Flynn	Joseph V.	19	Multi-purpose dam; Economic
Fogel	Lauren	1390	No Dam; Recreation - Upper American
Ford	Rebecca	342	No Dam
Ford	Kent	1578	NRA; No Dam
Forman	Donald	363	No Dam; Level of Protection; Project Purpose
Foster	Kim	700	No Dam; Cost
Foster	Betty	1284	Multi-purpose dam
Fox	Sean	1383	400-Year Alternative
Fraine	Stephen	24	Efficient use of Folsom
Frank	Doug	332	No Dam

Last name	First name	Contr Numbe	Subjects
Frankel	Louise	452	Plan Formulation; Wildlife/Vegetation - Upper American; Recreation - Upper American; NRA; Cost
Frankel	Michele	1147	Plan Formulation; Wildlife/Vegetation - Upper American
Franklin	Barry	1155	No Dam
Franz	Jennifer	414	Plan Formulation; No Dam; Project Purpose; Visual Impacts
Franzoia	Al	1115	400-Year Alternative; Water Supply Needs; NRA; Outlet Works (Gates)
Franzoia	Al	1809	Economics; 200-Year Alternative
Franzoia	Al	2159	200-Year Alternative; Aggregate Extraction; Plan Formulation; Mitigation - Upper American; Efficient Use of Folsom
Franzoia	Al	2160	Project Purpose; Cultural Resources; Recreation - Upper American; Mitigation
Franzoia	Al	2161	Mitigation; Highway 49 Relocation Water Supply Needs
Franzoia	Al	2162	Multi-purpose dam; Plan Formulation; Editorial
Franzoia	Al	2163	Editorial; Hydrology
Franzoia	Al	2164	Hydrology; Seismicity; Aggregate Extraction; Editorial
Franzoia	Al	2165	Editorial; Seismicity; Plan Formulation;
Franzoia	Al	2166	Water Quality - Upper American; Air Quality; Endangered Species
Franzoia	Al	2167	Endangered Species; Traffic - Natomas
Fraser	Kandle	82	No Dam
Frederick	Tom	321	Common Form Comment
Freeborn	Phyllis	447	NRA; Plan Formulation; Socioeconomics; Endangered Species
Freedom	Reality	1056	No Dam

Last name	First name	Contr Numbe	Subjects
Freeman	Herbert	419	400-Year Alternative
Freier	Rhoda	611	No Dam; Cost; Wildlife/Vegetation - Upper American
Fretz	Lin	716	Plan Formulation; Cost;
Friedman, DVM	Sue	502	Level of Protection; Visual Impacts; Recreation - Upper American
Frlekin		290	Plan Formulation
Froland	Jim	1285	Common Form Comment
Froley	Karen	1322	NRA
Froning	Constance	1781	No Dam
Frost	Leigh	682	Recreation - Upper American; Cost
Frost	Thomas	806	No Dam
Fruehan	Shana	1084	NRA; Cultural Resources; Wildlife/Vegetation - Upper American; Project Purpose
Frye	William	619	Editorial; Cost
Fryer	Barbara	970	No Dam; Wildlife/Vegetation - Upper American; NRA; Cost
Fryer	Chris	1149	No Dam
Fullerton	E.C,	1957	Plan Formulation; Fisheries; Level of Protection; Cost; Wildlife/Vegetation - Upper American
Fullerton	E.C,	1958	Plan Formulation; Mitigation; Fisheries - Upper American
Furman	Jonathan	1691	Common Form Comment
Gabrielson	Mary	862	No Dam; Project Purpose
Gagne	K.	463	NRA; Cost; Economics
Gaguine	Alexander	572	No Dam; Plan Formulation
Galblum	Lisa	58	No Dam; NRA
Gallagher	William	411	Common Form Comment
Gallagher	Lisa	663	Recreation - Upper American; No Dam; Wildlife/Vegetation - Natomas

Last name	First name	Contr Numbe	Subjects
Gallardo	Joseph	1472	Multi-purpose dam; Cost
Gallimore	Patricia	1019	NRA; Sloughing and Sedimentation
Gamaza	Tammi	1264	No Dam
Gamer	Thomas	1034	Multi-purpose dam
Gandolphi, DVM	Rene	695	No Dam; NRA; Plan Formulation
Garcia	P.	679	Plan Formulation; Cost; Project Purpose
Garcia	Alej	910	Recreation - Upper American
Garcia-Kenned y	Richard	415	No Dam; NRA; Operational Criteria of Gates; Cost; Natomas Growth Issue
Gardener	Roy	2031	100-Year (FEMA) Levee/Storage
Gardner	Chuck	1148	No Dam; Cost
Garlan	Robert	105	Cost; Recreation - Upper American
Garverick	Tim	173	Common Form Comment
Garverick	Lee	174	Common Form Comment
Gastman	Rebecca	2181	Plan Formulation; Cost; Editorial
Gastman	Rebecca	2182	Plan Formulation; Mitigation; Editorial
Gatto	Benny	1694	Multi-purpose dam
Geffs	John	1368	Multi-purpose dam; Seismicity
Gelis	H.	1340	Sloughing and Sedimentation
Genes M.D.	Dean	1789	No Dam; Plan Formulation
Genovali	Chris	735	Common Form Comment
Gentry	Steve	1453	100-Year (FEMA) Levee/Storage
Gerber	Joseph	1026	Common Form Comment
Gere	Gary	891	Cost; Project Purpose; Aggregate Extraction; NRA
Gere	Gary	892	Plan Formulation; Wildlife/Vegetation - Upper American
Germain	Michael	842	No Dam; Project Purpose; NRA;

Last name	First name	Contr Numbe	Subjects
			Water Supply Needs
Geroghty	Neill	1129	No Dam
Gerstley	E. L.	29	No Dam
Gettelman	Elizabeth	2018	No Dam; NRA
Geueson	Nina	77	No Dam; NRA
Giacchun	C.	1255	No Dam; Wildlife/Vegetation - Upper American
Giambroni	Annette	885	NRA; Wildlife/Vegetation - Upper American
Gianelli	William	2094	Multi-purpose dam
Giardini	Alyson	1061	100-Year (FEMA) Levee/Storage
Gibson	Anne	443	Common Form Comment
Gilbert	Denise	817	No Dam
Gilkey	M. Whitney	1434	No Dam; Water Quality
Ginsburg	Peter	520	No Dam; Recreation - Upper American; NRA;
Girardean	Dick	625	No Dam; Cost
Girvitz	Ken	368	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Gleaner	Debbie	1042	NRA
Glen	Sauntrice	219	NRA; No Dam
Glidamen	N.	934	Cost
Gloria	Jim	1201	No Dam; Multi-purpose dam
Gmegh	Paula	279	No Dam; NRA
Gold	Matt	118	No Dam; Recreation - Upper American
Golden	Everett	194	No Dam
Golden	Brady	1387	400-Year Alternative
Goldfarb	Ron	1723	Plan Formulation
Gomes	Terri	832	No Dam; Wildlife/Vegetation - Upper American
Gonzaks	Rebecca	607	No Dam; Plan Formulation;



Last name	First name	Contr Numbe	Subjects
			Wildlife/Vegetation - Upper American
Gonzales	Cathy	974	Level of Protection; Wildlife/Vegetation - Upper American; Cost
Good	Ron	373	No Dam; Operational Criteria of Gates; Cost; Plan Formulation
Goode	Eva	1089	Wildlife/Vegetation - Upper American; Efficient Use of Folsom; NRA
Goodrich	James	922	Cost; 100-Year (FEMA) Levee/Storage
Goodrich	Linda	1121	Project Purpose; Cost; 100-Year (FEMA) Levee/Storage
Goodsell	Ruben	1164	No Dam
Gorman	Jenny	2041	No Dam; 100-Year (FEMA) Levee/Storage
Gough	Maynard	151	NRA; 200-Year Alternative
Gould	Shirley	1586	Level of Protection; 100-Year (FEMA) Levee/Storage; NRA
Goyin	S.	1599	No Dam
Graham	John	648	Common Form Comment
Granfors	Mary	867	No Dam; NRA; Wildlife/Vegetation - Upper American
Grant	Sheila	244	No Dam; Recreation - Upper American; Level of Protection
Gravina	Ian	1624	No Dam; Cost; 100-Year (FEMA) Levee/Storage; NRA
Greeley	Winifred	252	No Dam; Plan Formulation; 100-Year (FEMA) Levee/Storage; Economics
Greely	Winifred	1593	Cost; No Dam; Plan Formulation; Wildlife/Vegetation - Upper American; Recreation - Upper American
Greely	Winifred	1594	Natomas Growth Issue; 100-Year (FEMA) Levee/Storage
Green	Michael	612	No Dam; Cost; Wildlife/Vegetation - Upper American

Last name	First name	Contr Numbe	Subjects
Green	Angela	1012	No Dam; Wildlife/Vegetation - Upper American; EO 11990
Greenspan	Russ	1603	No dam
Gregori	Nancy	188	No Dam; NRA; Additional upstream storage; Cost;
Gregson	David	1074	Multi-purpose dam
Gregson	Rodney	1711	Common Form Comment
Griffith	Brent	171	No Dam; Plan Formulation
Griffith	Joel	512	400-Year Alternative; Cost; No Dam; Plan Formulation
Griffith	David	1525	NRA; No Dam; Plan Formulation
Grim	Robert	768	Common Form Comment; Plan Formulation; Cost; Natomas Growth Issue
Groper	Maureen	1038	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Gropper	David	1413	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
Gross	Ali	232	No Dam
Grubb	Peter	672	Common Form Comment
Gruber	Hans	293	Cost; Wildlife/Vegetation - Upper American
Gruber	Jeremy	562	Level of Protection; Wildlife/Vegetation - Upper American; Plan Formulation
Grunsky	Frederic	386	Common Form Comment
Gualtieri	Kathryn	40	cultural resources
Guignon	Tom	680	Plan Formulation; Cost
Guitierrez	Thomas	1804	No Dam
Gutowsky	A.R.	265	Common Form Comment
Haagens	Randolph	1759	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American; NRA; 100-Year (FEMA) Levee/Storage
Habegger	Sue	784	No Dam; Recreation - Upper

Last name	First name	Contr Numbe	Subjects
			American; Common Form Comment; Water Supply Needs
Hackel	Florence	780	Water Supply Needs
Haddon	Sue	98	No Dam; Plan Formulation
Hagleshaw	Andy	458	No Dam; Seismicity
Halbrook	David	1166	Multi-purpose dam; Water Supply Needs; Plan Formulation
Halderman	James	99	400-Year Alternative
Haley	William	153	Common Form Comment
Haley	Bob	1035	Multi-purpose dam
Hall	Benson	239	No Dam; Recreation - Upper American; Plan Formulation
Hall	Tamara	409	No Dam; Cost; 100-Year (FEMA) Levee/Storage; NRA; Wildlife/Vegetation - Upper American
Hall	Barbara	1308	No Dam
Halprin	Mendy	454	No Dam
Haltiner	Jeffrey	215	No Dam; Plan Formulation; NRA
Hamilton	Bruce	49	No Dam; NRA; Natomas Growth Issue
Hamilton	Joseph	208	No Dam
Hamilton	David	392	Common Form Comment
Hannah	Kathy	139	No Dam; NRA
Hansen	Claire	1047	Common Form Comment
Hanson	Jo	460	Plan Formulation; NRA
Harb	Marcella	715	Plan Formulation; Seismicity; Water Supply Needs
Harder	Maura	1315	NRA
Hardesty	Mike	1871	400-Year Alternative; Multi-purpose dam; Efficient Use of Folsom; Level of Protection
Hardin	Kenneth	481	Common Form Comment
Hardy	Steven	755	Plan Formulation; NRA

Last name	First name	Contr Numbe	Subjects
Harford	Sandy	1773	Common Form Comment
Harper	Larry	1064	No Dam
Harper	Robert	1547	NRA; 100-Year (FEMA) Levee/Storage
Harris	Victoria	33	No action alternative
Harris	Andrew	54	No Dam
Harris	Virginia	170	100-Year (FEMA) Levee
Harris	Elwin	178	Common Form Comment
Harris	Lisa	405	No Dam
Harris	Jeff	940	Plan Formulation
Harris	Sidney	1549	Common Form Comment
Harris	V.J.	1888	Plan Formulation; Level of Protection; Economics; NRA
Harrison	Krissy	1399	No Dam; Plan Formulation
Hartmann M.D.	Robert	665	No Dam; Cost; Plan Formulation; Operational Criteria of Gates; Water Supply Needs
Hash	Jessica	757	No Dam; NRA
Hastings	Lance	1864	Multi-purpose dam; Cost
Hauer	Stan	1342	No Dam
Hazley	James	1707	Common Form Comment
Heacock	Brian	474	No Dam; Wildlife/Vegetation - Upper American
Head	Kenneth	1505	Multi-purpose dam
Healing	Duane	337	Project Purpose; Plan Formulation; Recreation - Upper American
Hedgecock	Lew	200	No Dam; Plan Formulation
Heisey	Andy	412	Common Form Comment
Hellwig	Susanne	388	No Dam; Seismicity
Hellwig	Gordon	573	Seismicity; Plan Formulation
Hemle	Jenny	340	No Dam
Henderson	Cara	1069	No Dam

Last name	First name	Contr Numbe	Subjects
Henderson	Thayrn	1353	Common Form Comment
Henderson	Thayrn	1913	Plan Formulation; Wildlife/Vegetation - Upper American; Project Purpose; NRA
Hendrickson	Heather	1010	Plan Formulation
Henneman	David	1348	Cost; No Dam; 100-Year (FEMA) Levee/Storage
Hensley	Kim	196	No Dam
Hensley	Margaret	199	No Dam
Hensley	Kevin	205	No Dam
Hernandez	Eddie	235	NRA; No Dam
Hernandez	Jesse	955	Recreation - Upper American; Wildlife/Vegetation - Upper American; NRA; No Dam
Hersh	David	556	Economics
Herte	Martina	357	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Herzog	Peggy	335	Level of Protection; Cost
Hespelt	Susan	1437	Common Form Comment
Hess	Karen	304	Plan Formulation; Water Supply Needs; Seismicity; Common Form Comment
Heston	Teresa	523	No Dam; Recreation - Upper American
Hiatt	John	120	No Dam; Recreation - Upper American
Hibbit	Amy	650	Common Form Comment
Higgins	Dennis	1110	400-Year Alternative
Higgins	Sidney	1701	Common Form Comment
Highland	Donna	1640	Common Form Comment
Higman	Sue/James	1279	Cost
Hiles	Necia	424	No Dam
Hilken	Daniel	69	NRA; No Dam; 100-Year (FEMA) Levee/Storage

Last name	First name	Contr Numbe	Subjects
Hilton	Jean	924	Common Form Comment
Hinkel	Stephen	1253	Common Form Comment
Hirsch	Tamara	378	Common Form Comment
Ho	Kahn	176	Plan Formulation
Hoch	Steven	166	No Dam; NRA; Cost
Hodson	Ryan	268	Common Form Comment
Hoffman	Ed	4	No dam;100-year (FEMA) Levee/Storage;Additional upstream storage; Efficient use of Folsom; Cost;
Hoffman	Terrel	799	No Dam
Hogan	Mary	733	Common Form Comment
Hogan	Bronwyn	748	Common Form Comment
Hogg	Susan	2269	Plan Formulation; Multi-purpose dam; Water Supply Needs
Holland	Elizabeth	854	Wildlife/Vegetation - Upper American
Holland	Mary Ellen	1732	No Dam; Plan Formulation
Hollenbach	Karin	819	Cost
Hollister	Sidney J. P.	1	No Dam
Holmes	Ralph	1391	Multi-purpose dam
Holmstrom	Christine	740	Common Form Comment
Holroyde	Sarah	1402	No Dam; Wildlife/Vegetation - Upper American
Holson-Scratch	Verna	1719	Common Form Comment
Holt, MSEH	Kenneth	1862	Plan Formulation
Holte	Jordan	890	No Dam
Holts	Rick	1237	No Dam; Cost
Hopkins	Heather	343	Wildlife/Vegetation - Lower American; Cost; Plan Formulation
Hopkins	Carol	367	No Dam; NRA; 100-Year (FEMA) Levee/Storage

Last name	First name	Contr Numbe	Subjects
Hopkins	William	422	No Dam; Recreation - Upper American; Plan Formulation
Hopkins	Gary/Pam	1688	No Dam; Wildlife/Vegetation - Upper American; Cost
Hopper	Kevin	1411	Wildlife/Vegetation - Upper American; Upper American Land Use; Plan Formulation
Horenstein	Julie	2011	Plan Formulation; Editorial; Wildlife/Vegetation - Upper American; Aggregate Extraction; Section 404 (b) (1)
Horenstein	Julie	2012	Wildlife/Vegetation - Upper American; Mitigation - Upper American
Horenstein	Julie	2013	Endangered Species; Editorial
Horenstein	Julie	2014	Editorial; Plan Formulation
Horner	Kimberly/Joshua	515	No Dam; 100-Year (FEMA) Levee/Storage; Cost;
Horowitz	Brian	942	NRA; Cost
Horton	Edward	1956	Multi-purpose dam; Cost
Houghton	Perrienne	1487	Common Form Comment
Houlihan	John	525	No Dam
Hourvitz	Leo	273	No Dam; Plan Formulation; NRA
House	Jennifer	1721	NRA; No Dam
Houska	Rochelle	1533	Water Supply Needs; No Dam
Howard	George	793	No Dam; Plan Formulation
Howell	Jim	1808	Hydrology
Howell	Jim	1914	Plan Formulation; Highway 49 Relocation; Level of Protection
Howse	Robert	1812	Economics; 200-Year Alternative
Hubbard	Diane	1134	NRA
Hubbard	Susan	1790	Plan Formulation; Cost; NRA; Operational Criteria of Gates
Hubenthal	Dayna	1558	Common Form Comment
Huberman M.D.	Robert	1717	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Hubert	Mary	2003	Wildlife/Vegetation - Upper American
Hudson	Sally	1194	Plan Formulation; Mitigation - Natomas
Hunt	Sheri	846	No Dam
Hunt	Jim	1178	Cost; 400-Year Alternative
Hunt	Joe	1408	No Dam; Plan Formulation
Hunt	Jim	1564	Multi-purpose dam
Hunter	James	1265	No Dam
Hunter	Alan	1815	Economics; 200-Year Alternative
Hurtade	Cileate	1248	No Dam
Hush	Jeff	1290	No Dam
Hust	Steven	1930	Project Purpose; Plan Formulation; Aggregate Extraction; Folsom Reoperation
Hust	Steven	1931	Highway 49 Relocation; Hazardous and Toxic Waste; Water Quality - Upper American
Hust	Steven	1932	Aggregate Extraction; Air Quality
Hust	Steven	1933	Air Quality; Wildlife/Vegetation - Upper American; Aggregate Extraction
Hust	Steven	1934	Wildlife/Vegetation - Upper American; Fisheries - Upper American;
Hust	Steven	1935	Cultural Resources; Traffic - Auburn
Hust	Steven	1936	Highway 49 Relocation; Traffic - Auburn
Hust	Steven	1937	Noise; Recreation - Upper American
Hust	Steven	1938	Socioeconomics; Visual Impacts; Upper Canyon Growth Issue; Inundation Frequency
Hust	Steven	1939	Inundation Frequency; Section 404 (b) (1)
Hust	Steven	1940	Section 404 (b) (1)



Last name	First name	Contr Numbe	Subjects
Hust	Steven	1941	Section 404 (b) (1)
Hust	Steven	1942	Section 404 (b) (1); Plan Formulation; Seismicity
Hust	Steven	1943	Plan Formulation; Sloughing and Sedimentation
Hutton	Teresa	1777	No Dam; 100-Year (FEMA) Levee/Storage
Hwang	Sunny	1690	No Dam; Water Supply Needs
Illegible		132	No Dam; Plan Formulation; Seismicity
Illegible		133	No Dam; Plan Formulation
Illegible		582	Plan Formulation
Illegible	Pete	730	No Dam
Illegible	Marc	745	Common Form Comment
Illegible		751	No Dam; Level of Protection; Cost
Illegible		794	No Dam; Water Supply Needs
Illegible	Randal	1030	No Dam; Cost; 100-Year (FEMA) Levee/Storage
Illegible		1156	No Dam; 100-Year (FEMA) Levee/Storage; Recreation - Upper American; Economics
Illegible		1267	No Dam
Illegible		1289	No Dam; NRA
Illegible		1332	Recreation - Upper American; Wildlife/Vegetation - Upper American; Plan Formulation; Cost
Illegible		1479	Common Form Comment
Illegible		1480	Common Form Comment
Illegible		1481	Common Form Comment
Illegible	Paul	1508	Plan Formulation
Illegible		2042	No Dam; Cost; Level of Protection
Illegible	Doug	2047	No Dam; Cost; Recreation - Upper American; 100-Year (FEMA) Levee/Storage

Last name	First name	Contr Numbe	Subjects
Illgner	Jeff	2032	Common Form Comment
Irving	Chris	683	Plan Formulation; Economics; Seismicity
Isaacs	Sara	1430	No Dam; Wildlife/Vegetation - Upper American; Cost
Jabbour	Jean	1475	Common Form Comment
Jackson	Linda	1859	No Dam; Plan Formulation; Cost; Visual Impacts
Jacobs	Dave	35	Multi-purpose dam
Jacobs	Allison	948	Cost, Wildlife/Vegetation - Upper American; Recreation - Upper American; NRA
Jacobsen	Zoe Ann	707	No Dam; Plan Formulation; Water Supply Needs; Natomas Growth Issue
Jacobson	Joyce	85	Recreation - Upper American; Wildlife/Vegetation - Upper American
Jacobson	Don	365	Common Form Comment
Jacobson	Robin/Myron	1158	No Dam; Cost; Aggregate Extraction
Jacobson	Daniel	1163	No Dam; Cost; NRA
Jaeger	Joy	822	Wildlife/Vegetation - Upper American
Jameyson	Ed	1775	100-Year (FEMA) Levee/Storage; Plan Formulation; Level of Protection
Jankovich	Todd	192	No Dam
Jarlesburg	Jane	115	No Dam; Recreation - Upper American
Jee	Jessica	1006	Wildlife/Vegetation - Upper American
Jenison	C.P.	1288	Multi-purpose dam
Jenison	Betty	1292	Multi-purpose dam
Jenkins	Dale	874	No Dam; NRA
Jennings	Sarah	566	No Dam
Jennings	Eric	689	NRA; No Dam; Water Supply Needs; Wildlife/Vegetation - Natomas

Last name	First name	Contr Numbe	Subjects
Jennings	Jennifer	1114	Plan Formulation; No Dam;
Jennings	Jennifer	2187	Cost; Level of Protection; Plan Formulation; Folsom Reoperation; Hydrology
Jennings	Jennifer	2188	Level of Protection; Economics; Wildlife/Vegetation - Upper American; Hydrology
Jennings	Jennifer	2189	Cost; Plan Formulation;
Jennings	Jennifer	2190	Plan Formulation; Folsom Reoperation; Cultural Resources; Wildlife/Vegetation - Upper American
Jennings	Jennifer	2191	Economics; Plan Formulation:
Jennings	Jennifer	2192	No Action alternative; Plan Formulation; Interior Drainage; Natomas Land Use
Jennings	Jennifer	2193	Wildlife/Vegetation; Aggregate Extraction; Outlet Works (Gates)
Jennings	Jennifer	2194	Interior Drainage; Mitigation; Cost
Jennings	Jennifer	2195	Cost;
Jennings	Jennifer	2196	Land Use - General; Mitigation; Cost
Jennings	Jennifer	2197	Operational Criteria of Gates; Mitigation; Mitigation - Upper American; Plan Formulation; Water Quality - Upper American
Jennings	Jennifer	2198	Sloughing and Sedimentation; Mitigation - Natomas; Editorial; Socioeconomics; Economics
Jennings	Jennifer	2199	Plan Formulation; Operational Criteria of Gates; Legal Compliance; Aggregate Extraction
Jennings	Jennifer	2200	Legal Compliance; Hydrology
Jennings	Jennifer	2201	Hydrology
Jennings	Jennifer	2202	Hydrology; Cost
Jennings	Jennifer	2203	Hydrology; Plan Formulation; Recreation - Lower American; Wildlife/Vegetation - Lower American

Last name	First name	Contr Numbe	Subjects
Jennings	Jennifer	2204	Folsom Reoperation; Plan Formulation
Jennings	Jennifer	2205	Economics; Plan Formulation; Land Use - General
Jennings	Jennifer	2206	Land Use - General
Jennings	Jennifer	2207	Land Use - General
Jennings	Jennifer	2208	Mitigation; Legal Compliance
Jennings	Jennifer	2209	Hazardous and Toxic Waste
Jennings	Jennifer	2210	Hazardous and Toxic Wastes; Water Quality
Jennings	Jennifer	2211	Water Quality; Water Quality - Upper American; Water Quality - Natomas
Jennings	Jennifer	2212	Water Quality; Air Quality
Jennings	Jennifer	2213	Air Quality; Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Natomas
Jennings	Jennifer	2214	Fisheries; Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Natomas; Wildlife/Vegetation - Lower American
Jennings	Jennifer	2215	Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Lower American; Fisheries
Jennings	Jennifer	2216	Wildlife/Vegetation - Upper American; Mitigation; Wildlife/Vegetation - Lower American
Jennings	Jennifer	2217	Mitigation; Fisheries; Wildlife/Vegetation - Lower American; Wildlife/Vegetation - Upper American
Jennings	Jennifer	2218	Wildlife/Vegetation - Upper American
Jennings	Jennifer	2219	Wildlife/Vegetation - Upper American
Jennings	Jennifer	2220	Wildlife/Vegetation - Upper American
Jennings	Jennifer	2221	Wildlife/Vegetation - Upper

Last name	First name	Contr Numbe	Subjects
			American; Inundation Frequency
Jennings	Jennifer	2222	Wildlife/Vegetation - Upper American; Sloughing and Sedimentation
Jennings	Jennifer	2223	Sloughing and Sedimentation; Wildlife/Vegetation - Upper American
Jennings	Jennifer	2224	Wildlife/Vegetation - Upper American
Jennings	Jennifer	2225	Wildlife/Vegetation - Upper American
Jennings	Jennifer	2226	Wildlife/Vegetation - Upper American; Mitigation - Upper American; Endangered Species; Mitigation
Jennings	Jennifer	2227	Endangered Species; Mitigation; Cultural Resources
Jennings	Jennifer	2228	Cultural Resources
Jennings	Jennifer	2229	Cultural Resources
Jennings	Jennifer	2230	Agriculture; Traffic - Auburn; Editorial
Jennings	Jennifer	2231	Traffic - Natomas; Traffic - Auburn
Jennings	Jennifer	2232	Traffic - Auburn; Noise
Jennings	Jennifer	2233	Noise; Recreation - Natomas; Recreation - Lower American
Jennings	Jennifer	2234	Recreation - Lower American
Jennings	Jennifer	2235	Recreation - Upper American; Recreation - Lower American
Jennings	Jennifer	2236	Recreation - Upper American
Jennings	Jennifer	2237	Recreation - Upper American; Recreation - Lower American
Jennings	Jennifer	2238	Recreation - Upper American; Recreation - Lower American
Jennings	Jennifer	2239	Recreation - Upper American; Recreation - Lower American
Jennings	Jennifer	2240	Recreation - Lower American; Socioeconomics

Last name	First name	Contr Numbe	Subjects
Jennings	Jennifer	2241	Visual Impacts
Jennings	Jennifer	2242	Visual Impacts; Air Quality
Jennings	Jennifer	2243	Wildlife/Vegetation - Upper American; Air Quality; Highway 49 Relocation; Level of Protection
Jennings	Jennifer	2244	Natomas Growth Issue; Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Lower American
Jennings	Jennifer	2245	Mitigation, Section 404 (b)(1); Mitigation - Lower American
Jennings	Jennifer	2246	Section 404 (b)(1)
Jennings	Jennifer	2247	Section 404 (b)(1)
Jennings	Jennifer	2248	Section 404 (b)(1)
Jennings	Jennifer	2249	Section 404 (b)(1); EO 11990; EO 11988
Jennis	Eileen	908	Common Form Comment; Cost
Jennrick	Mimi	1897	Wildlife/Vegetation - Upper American; Recreation - Upper American; Natomas Growth Issue
Jennrick	Mimi	1898	100-Year (FEMA) Levee/Storage; Cost
Jensen	Gwen	403	No Dam
Jensen	Barbara	428	No Dam; Wildlife/Vegetation - Upper American; Efficient Use of Folsom
Jensen	Scott	1091	No Dam; NRA
Jensen	Duggan	1375	400-Year Alternative
Jensen	Stefani	1483	Common Form Comment
Jensen	Patricia	1582	Seismicity; Cost; Plan Formulation
Jenson	Janet	1634	Common Form Comment
Jerge	James/Patricia	762	Common Form Comment
Jerome	Gerald	737	Common Form Comment
Jerome	Gerald	1543	No Dam; Plan Formulation; Cost
Johnson	Tamara	224	No Dam; Economics

Last name	First name	Contr Numbe	Subjects
Johnson	Nancy	789	Common Form Comment
Johnson	Robert	957	Multi-purpose dam
Johnson	Caroline	989	No Dam; 100-Year (FEMA) Levee/Storage
Johnson		1490	Common Form Comment
Johnson	Bruce	1874	Multi-purpose dam
Johnson	Roger	1924	Legal Compliance; Water Supply Needs; Hydrology
Johnson	Roger	1925	Legal Compliance; Sloughing and Sedimentation; Seismicity;
Johnson	Roger	1926	Legal Compliance
Johnston	Bruce	1192	400-Year Alternative; Multi-purpose dam
Jones	Evan	180	No Dam; Inundation Frequency
Jones	Sharlene	1356	Cost; Plan Formulation; Wildlife/Vegetation - Upper American
Jones	Bruce	1638	Common Form Comment
Joos	Dorothy	1697	No Dam; Plan Formulation
Jorgensen	James	1819	Economics; 200-Year Alternative
Jorgenson	Brant	914	Common Form Comment; Cost; Recreation - Upper American; Wildlife/Vegetation - Upper American
Judd, Jr.	Robert L.	16	No dam; Economics
Judson	William	168	No Dam; NRA
Jung	Gregory	576	Plan Formulation; NRA
Jurifa	W.R.	1307	No Dam
Juska	Carrie	1247	No Dam; Plan Formulation
Kabus	Robert	1772	Common Form Comment
Kallevig	Loren	1737	Common Form Comment
Kaminer	Amy	1280	NRA
Kammerer	Jeanne	1726	Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
Kane	Murray	2049	No Dam; Cost; Seismicity; Recreation - Upper American; 100-Year (FEMA) Levee/Storage
Kapp	D.	1140	No Dam; 100-Year (FEMA) Levee/Storage
Kark	Bruno	1478	Common Form Comment
Kast	Gary	206	NRA; Seismicity; Plan Formulation; Cost; Aggregate Extraction
Kauffman	Jerry	165	Common Form Comment
Kaufman	Mary	320	No Dam; Level of Protection
Kaufman	James	393	Common Form Comment
Kay	Steve	286	No Dam
Kayler	Erica	1127	Recreation - Upper American
Keese	Mike	1798	Common Form Comment
Keesis	Chris	1457	No Dam
Keleher	Cynthia	187	No Dam; Economics; Recreation - Upper American
Keller	Larry	264	Common Form Comment
Kelley	Mike	981	No Dam; 100-Year (FEMA) Levee/Storage
Kellner	Sarah	498	No Dam; Plan Formulation
Kelly	Anne	1517	No Dam; 100-Year (FEMA) Levee/Storage
Kelso	Bob	3	Plan Formulation; Project purpose; Recreation - Upper American
Kelso	Michelle	872	No Dam; Wildlife/Vegetation - Upper American
Kemper	Scott	277	Multi-purpose dam; Water Supply Needs
Kemper	Scott	1822	Economics; 200-Year Alternative
Kendall	Nathan	292	Common Form Comment
Kennedy	J.F./Elizabeth	1235	Multi-purpose dam
Kerwin	Donna	915	No Dam; Common Form Comment; Cost;
Keyesen	Dalia/Dorian	1598	Cost; Wildlife/Vegetation - Upper



Last name	First name	Contr Numbe	Subjects
			American
Kiesel	Walter	6	Cost; Plan formulation
Killian	Eldon	1501	NRA; Cost; Wildlife/Vegetation - Upper American
Kim	David	1398	No Dam; 100-Year (FEMA) Levee/Storage; Visual Impacts; Wildlife/Vegetation - Upper American
Kimble	Chris	1389	No Dam; Cost; Wildlife/Vegetation - Upper American; Cultural Resources
Kimes	James	1298	Multi-purpose dam
King	Bruce	1051	No Dam
King	Gerald	1094	Plan Formulation; 400-Year Alternative
Kipping	John	1675	No Dam; Highway 49 Relocation; Recreation - Upper American; NRA; Cost
Kirschvink	James	1500	NRA; No Dam; Visual Impacts
Kitchak	Peter	154	Common Form Comment
Kitchen	Susan	102	Wildlife/Vegetation - Upper American; No Dam; Cost; 100-Year (FEMA) Levee/Storage
Klabius	John	966	Cost; Recreation - Upper American; 100-Year (FEMA) Levee/Storage
Klabunde	Connie	788	No Dam
Klalbour	Sherri	1782	Common Form Comment
Kleinback	John	1489	Common Form Comment
Klopfer	Stacey	1283	No Dam
Knight	Dennis	1188	Multi-purpose dam
Knopp	Chris	398	No Dam; NRA
Knowles	David	1865	Multi-purpose dam; Plan Formulation; Water Supply Needs; Wildlife/Vegetation - Upper American; Fisheries - Lower American
Knowles	David	1866	Visual Impacts; Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
Knowlton	Anita	216	*RA; No Dam
Koch	George	634	No Dam; Cost; Additional Upstream Storage
Koch	Gary	1258	No Dam; Fisheries - Lower American
Koenig	Mary	1555	Common Form Comment
Koerber	Judy	140	No Dam; Water Supply Needs
Kollenberg	Mary Ann	1769	Visual Impacts; NRA; No Dam; Economics; Aggregate Extraction
Kollenberg	Mary Ann	1770	100-Year (FEMA) Levee/Storage; Natomas Growth Issue
Kong	Teresa	557	NRA; Air Quality; Fisheries - Upper American; Wildlife/Vegetation - Upper American
Konkel	Jon	626	No Dam; Wildlife/Vegetation - Upper American
Kornfeld	Fred/Ilse	385	Plan Formulation
Koshari	Sandy	1764	Common Form Comment
Koslik	Frank	1045	Multi-purpose dam
Krage	Chet/Diane	555	Common Form Comment; Efficient Use of Folsom; 150-Year (FEMA) Alternative; Wildlife/Vegetation - Upper American
Krase	Robert	2020	No Dam; Wildlife/Vegetation - Upper American; Cost
Kratt	Marilyn	312	Common Form Comment
Krautkraemer	John	2183	Plan Formulation; Folsom Reoperation; Additional Upstream Storage;
Krautkraemer	John	2184	Additional Upstream Storage; 100-Year (FEMA) Levee; Hydrology
Krautkraemer	John	2185	Wildlife/Vegetation - Upper American; Plan Formulation;
Krautkraemer	John	2186	Multi-purpose dam; Plan Formulation; Cultural Resources
Krawl	Jennifer	172	No Dam
Kreig	S.	744	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Krings	T.J.	1591	Common Form Comment
Kritzer	Sherry	28	Water supply needs;
Krogman	Dana	893	No Dam; NRA; Plan Formulation
Kroll	Katherine L.	18	Multi-purpose dam;
Kruger	Warren	185	100-Year (FEMA) Levee; Recreation - Upper American
Kruger	Robert	550	No Dam
Kueble	Monica	698	No Dam; Project Purpose; Seismicity
Kuennen	Michelle	344	No Dam; Plan Formulation
Kuhar	Larisa	834	No Dam; Plan Formulation
Kunst	C.R.	1016	Plan Formulation
Kupfer	Michael	662	Cost; NRA; Plan Formulation
Kurth	Suzanne	225	No Dam; NRA
Kutzera	Ken	1233	Multi-purpose dam
Kuysen	Deidre	928	Cost; Plan Formulation; Wildlife/Vegetation - Upper American
L.	Evangeline	1252	No Dam
La	Michael	1504	Plan Formulation; Cost; Wildlife/Vegetation - Upper American; NRA
La Perle	Courtney	878	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
La Shure	Donald	1491	Common Form Comment
La Shure	Brandon	1497	No Dam
Lage	Jessica	1090	No Dam; NRA
Lam	Cynthia	833	Plan Formulation; Cost
Lam	Fred	968	Recreation - Upper American
Lambdin	Craig	921	Cost
Lambert	James	1813	Economics; 200-Year Alternative
Lamont	Jeanne	919	No Dam; Cost

Last name	First name	Contr Numbe	Subjects
Lamont	Amanda	1092	No Dam; Cost; 100-Year (FEMA) Levee/Storage
Landers	Florence	78	No Dam
Landshoff	Deborah	517	Level of Protection; Project Purpose;
Lane	Franklin	1595	Multi-purpose dam
Langford	Michael	982	Aggregate Extraction; Cost; Economics; Recreation -Upper American; No Dam
Lapham	John	2052	No Dam; Plan Formulation; NRA; Natomas Growth Issue
Lara	Elizabeth	1669	Cost; Wildlife/Vegetation - Upper American; Seismicity
Larenas	Monica	51	Plan Formulation;
LaRocca	Tom	585	No Dam
Larson	Scott	425	Common Form Comment
Larson	Donna/Tom	1751	Level of Protection; Recreation - Upper American; 100-Year (FEMA) Levee/Storage
Lashley	Paul	1268	No Dam; Wildlife/Vegetation - Upper American
Lassiter	Pam	1214	Common Form Comment
Lauwers	John	728	No Dam
Laverty	Jan/Beverly	1170	Multi-purpose dam
Law	Chris	1282	Plan Formulation
Lazar M.D.	Lyn	1516	Cost; No Dam; 100-Year (FEMA) Levee/Storage; Visual Impacts; Recreation - Upper American
Le	Casey	334	Common Form Comment
Leccuya	Cathy	228	No Dam; NRA
Lecklikner	Jan	374	Common Form Comment
Leddy	Thomas	646	Common Form Comment
Lee	Joan	643	Common Form Comment
Lee	Vicki	2250	Agriculture; Cultural Resources; Highway 49 Relocation

Last name	First name	Contr Numbe	Subjects
Lee	Vicki	2251	Cultural Resources; Hazardous and Toxic Waste; Mitigation - Upper American
Lee	Vicki	2252	Mitigation - Upper American; Mitigation - Natomas; Recreation - Upper American
Lee	Vicki	2253	Recreation - Upper American; Recreation - Natomas
Lee	Vicki	2254	Recreation - Natomas; Wildlife/Vegetation - Upper American
Lee	Vicki	2255	Wildlife/Vegetation - Upper American
Lee	Vicki	2256	Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Natomas; Wildlife/Vegetation - Lower American
Lee	Vicki	2257	Wildlife/Vegetation - Lower American; Aggregate Extraction; Natomas Growth Issue; Upper Canyon Growth Issue; Fisheries - Lower American
Lee	Vicki	2258	Plan Formulation; Hydrology; Natomas Growth Issue; Wildlife/Vegetation - Lower American
Lee	Vicki	2259	Recreation - Upper American; Water Quality - Upper American; Additional Upstream Storage
Lee	Vicki	2260	Efficient Use of Folsom; Hydrology; Fisheries - Lower American
Lee	Vicki	2261	Fisheries; Plan Formulation; Aggregate Extraction; Highway 49 Relocation
Lee	Vicki	2262	Air Quality; Natomas Land Use; Upper Canyon Growth Issue
Leeds	Jennifer	1537	Common Form Comment
Leeds	David	1643	Common Form Comment
Lefevre	Frank	1060	No Dam
Lefkoff Ph.D.	Jeff	1575	Operational Criteria of Gates; Cost; NRA; Wildlife/Vegetation -

Last name	First name	Contr Numbe	Subjects
			Upper American
Lehet	Jacques	951	No Dam
Leichter	Maxine	1532	Common Form Comment; Operational Criteria of Gates; Aggregate Extraction
Leingang	Thad	1017	Common Form Comment
Lemkuil	Jeanne	1169	Common Form Comment
Lemon	Josephine	1752	No Dam; Plan Formulation; Cost; 100-Year (FEMA) Levee/Storage
Leonard	Patrick	1784	Common Form Comment
Leonardini	Barry	269	NRA; No Dam
Lependorf	Bruce/Carol	1239	No Dam; Wildlife/Vegetation - Upper American
LeQuin	Carolyn	599	No Dam
Lester	Frank	814	No Dam; Recreation - Upper American
Lewis	Chris	210	No Dam
Lewis	Glen	667	NRA; Cost
Lewis	Marilyn	933	No Dam
Lewis	Jonna	1141	Level of Protection; Cost; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Lewis	Connie	1530	No Dam; Natomas Growth Issue; Water Supply Needs; Recreation - Upper American; Wildlife/Vegetation - Upper American
Lewis	Kae	1742	Operational Criteria of Gates; Plan Formulation; Water Supply Needs
Libby	Richard	1927	Plan Formulation; Multi-purpose dam
Libby	Richard	1928	Internal Drainage; Wildlife/Vegetation - Natomas
Libby	Richard	1929	Plan Formulation
Libby D.V.M.	L.R.	1526	Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
Lieb	Eric	229	No Dam; NRA
Lin	Joseph	579	NRA; No Dam
Lindenbaum	Lisa	1426	No Dam; 100-Year (FEMA) Levee/Storage
Lingle	Brian	1610	No Dam
Linker	John	552	No Dam
Linsley	Alan	193	Plan Formulation
Lipp	Robert/Judy	459	Level of Protection; Cost; Plan Formulation
Lipshitz	Lisa	560	Economics; Level of Protection; Wildlife/Vegetation - Upper American
Liu	David	1040	No Dam; Cost; Recreation - Upper American
Lockmiller, M. D.	Richard	486	100-Year (FEMA) Levee; Cost
Loddengaard M.D.	James	1503	NRA; No Dam; Plan Formulation; Cost
Loeffelbein	Ruth	1709	Common Form Comment
Loken	Janet	702	Plan Formulation; Seismicity; Cost
Lombardo	Tom	20	Cost
Lomon	Dierde	300	No Dam
Lomont	Don	1287	Plan Formulation
London	H.	1494	No Dam
Long	Sharon	500	Common Form Comment
Longcor	Brian	430	Common Form Comment
Lord	Stuart	328	Common Form Comment
Lote	Christopher	1359	Plan Formulation
Louie	Mabel	1499	Multi-purpose dam
Lowings	Simon	448	NRA; No Dam; Economics;
Lu	Jennie	1005	No Dam
Luboff	David	330	No Dam; 100-Year (FEMA) Levee/Storage; Natomas Growth

Last name	First name	Contr Numbe	Subjects
			Issue; Recreation - Upper American; Cost
Luie	John	993	No Dam; NRA
Luke	David	1757	Recreation - Upper American; NRA; Level of Protection
Lund	Klay	764	Common Form Comment
Lundin	Robert	1079	Cost; Level of Protection; 400-Year Alternative; Highway 49 Relocation; Editorial
Lundin	Robert	1080	Editorial; Mitigation - Natomas; Wildlife/Vegetation - Upper American
Lustgarten	Al	253	NRA; No Dam
Lustgarten	Brian	352	No Dam; NRA
Lustgarten	Dan	353	No Dam; NRA
Luvaas	Jon	482	Common Form Comment
Lynch	Gail	807	NRA
Lynch	Michael	1442	Common Form Comment
Lyon	Mike	1190	Plan Formulation
Mac Nab	David	76	No Dam
Macario	Melanie	1464	NRA
MacDonald	Edward	936	Cost; Plan Formulation; 100-Year (FEMA) Levee/Storage
Macom	Thomas	1779	Plan Formulation; No Dam; Seismicity
Madgic	Robert	1786	Plan Formulation
Maino	Karina	947	Wildlife/Vegetation - Upper American
Mangrum	T.	837	Recreation - Upper American; Plan Formulation
Mania	Matt	1802	Common Form Comment
Manion	Steve	484	Efficient Use of Folsom; Recreation - Upper American; Cost; No Dam; Plan Formulation
Manning	Kurtis	1463	No Dam



Last name	First name	Contr Numbe	Subjects
Mansfield	Clayton	1254	No Dam; Plan Formulation; 100-Year (FEMA) Levee/Storage
Manz	Christine	644	Common Form Comment
Mar	Christine	1007	No Dam; Recreation - Upper American; Cost; 100-Year (FEMA) Levee/Storage
Mardesich	Anthony	483	No Dam; Cost; Wildlife/Vegetation - Upper American; No Dam; 100-Year (FEMA) Levee/Storage
Mardesich	Daniel	1636	Common Form Comment
Margetts	Sharon	1810	Economics; 200-Year Alternative
Marken	Mary	742	Common Form Comment
Marshall	Janelle	1574	No Dam
Marshall	Amara	1791	Common Form Comment
Martin	Julie	72	Project Purpose; Level of Protection; Plan Formulation
Martin	Rachmat	79	No Dam; Cost
Martin	Hans	888	No Dam; Recreation - Upper American
Martin	Sheila	1165	NRA; Cost; Natomas Growth Issue; Endangered Species
Martin	Blair	1414	No Dam
Martin	Karin	1443	No Dam
Martinez	Jesse	284	No Dam; NRA
Martinez	Joseph	598	No Dam; Plan Formulation
Martinez	Jennifer	803	Plan Formulation
Martinez	Joseph	943	No Dam; Wildlife/Vegetation - Upper American; Plan Formulation
Martinez	Joe	996	Cost; Project Purpose; 100-Year (FEMA) Levee/Storage
Mason	John	907	No Dam; Cost; Seismicity; Plan Formulation; NRA
Massey	Beryl	1297	Multi-purpose dam
Massey	Robert	1301	Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
asson, Ph.D.	Raymond	156	Plan Formulation; NRA
Masters	Kristin	283	Wildlife/Vegetation - Upper American; Cost; Socioeconomics; Recreation - Upper American; No Dam
Mathis	Norman	1275	No Dam; Plan Formulation
Mathis	Ilse	1768	Common Form Comment
Matsuno	Alan	301	Common Form Comment
Maudlin	Michael	1033	Common Form Comment
Maupin	Ted	600	100-Year (FEMA) Levee; Multi-purpose dam; EO 11988
Maxwell	Dave	616	No Dam
Maxwell	Bruce	860	No Dam
Mayberry	Richard	1818	Economics; 200-Year Alternative
Mayer	Jon	787	No Dam; Seismicity
Mayer	Stewart	1436	Common Form Comment
ayer	Dorothy	1590	Common Form Comment
Mc Rae	Kevin	1614	Common Form Comment
McArdy	Peggy	134	No Dam; Plan Formulation; Natomas Growth Issue;
McAteer	Terance	231	No Dam; NRA
McBride	Marjory	1632	Common Form Comment
McCann	Laurie	23	NRA; Operational Criteria of Gates
McCann III	James	43	No dam; NRA
McClay	Janet	614	No Dam; Wildlife/Vegetation - Upper American
McCleary	Patty	50	No Dam; 100-Year (FEMA) Levee/Storage
McClure	Claire	1041	No Dam
McCollam, Jr.	Albert	2170	Mitigation; Plan Formulation; Internal Drainage
McCollam, Jr.	Albert	2171	Economic; Editorial
McCollam, Jr.	Albert	2172	Editorial;

Last name	First name	Contr Numbe	Subjects
McCollam, Jr.	Albert	2173	Mitigation
McCollogh	Natalie	717	Project Purpose; NRA
McCoy	Bridget	1573	Common Form Comment
McCrakin	Timothy	1133	No Dam; NRA; Cost
McCurry	Kristy	416	No Dam; Plan Formulation; Recreation - Upper American; EO 11990
McDlurg	Rob	1456	Plan Formulation
McDonald	Randall	316	Common Form Comment
McDonald	Mark	1607	No Dam
McDowell	Madeline	65	Cost; Seismicity; Level of Protection; Plan Formulation; 100-Year (FEMA) Levee/Storage
McEliece	Lizzy	1314	Plan Formulation
McFarlane	Craig	1433	Level of Protection; Cost; Plan Formulation
McGee	James; Lucile	1502	Level of Protection; Plan Formulation; NRA
McGovern	Betty	792	No Dam
McGovern	Daniel	1829	Plan Formulation; Folsom Reoperation
McGovern	Daniel	1830	Plan Formulation; Legal Compliance
McGovern	Daniel	1831	Legal Compliance; Plan Formulation; Aggregate Extraction; Folsom Reoperation
McGovern	Daniel	1832	Plan Formulation; Endangered Species
McGovern	Daniel	1833	Plan Formulation; Highway 49 Relocation; Cultural Resources
McGovern	Daniel	1834	Plan Formulation: Legal Compliance
McGovern	Daniel	1835	Plan Formulation
McGovern	Daniel	1836	Legal Compliance; Plan Formulation
McGovern	Daniel	1837	Legal Compliance; Economics
McGovern	Daniel	1838	Plan Formulation;

Last name	First name	Contr Numbe	Subjects
McGovern	Daniel	1839	Plan Formulation; Economics; Cost
McGovern	Daniel	1840	Economics; Legal Compliance; Plan Formulation; Endangered Species
McGovern	Daniel	1841	Plan Formulation; Aggregate Extraction; Fisheries - Lower American
McGovern	Daniel		Plan Formulation; Endangered Species; Section 404 (b) (1)
McGovern	Daniel	1843	Legal Compliance; Wildlife/Vegetation - Upper American; Sloughing and Sedimentation; Visual Impacts
McGovern	Daniel	1844	Mitigation; Water Quality; Water Quality - Natomas
McGovern	Daniel	1845	Water Quality; Sloughing and Sedimentation
McGovern	Daniel	1846	Water Quality; Water Supply Needs
McGovern	Daniel	1847	Air Quality; Editorial
McGovern	Daniel	1848	Plan Formulation; Recreation - Natomas; Internal Drainage;
McGovern	Daniel	1849	Plan Formulation; Outlet Works (Gates); Highway 49 Relocation; Editorial
McGovern	Daniel	1850	400-Year Alternative; Mitigation; Plan Formulation; Borrow Areas - Natomas
McGovern	Daniel	1851	Mitigation; Plan Formulation; Editorial
McGovern	Daniel	1852	Air Quality; Plan Formulation; Editorial
McGovern	Daniel	1853	Seismicity; Editorial
McGovern	Daniel	1854	Plan Formulation; Aggregate Extraction; Wildlife/Vegetation - Upper American
McGovern	Daniel	1855	Plan Formulation
McGrew	Carl	671	No Dam
McHugh	Pete	1710	Common Form Comment
McIntyre	Myron	1213	Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
McIntyre	Robert	1681	Common Form Comment
McKean	John P.	36	Operational criteria of gates; Aggregate extraction; cost; NRA; 100-Year (FEMA) Levee/Storage
McKechnie	Marie	1861	No Dam; Cost; Level of Protection; Recreation - Upper American
McKee	Brian	404	No Dam
McKeeman	Bruce	80	No Dam; Wildlife/Vegetation - Upper American
McLaughlin	Larry	652	Common Form Comment
McLees	Peter	1144	Wildlife/Vegetation - Upper American; Recreation - Upper American
McLeon	Robert	1205	Plan Formulation
McMillan	Suzanne	944	No Dam
McMillan	Keith	1128	No Dam
McNamara	Chris	1376	No Dam; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
McNamu	Peter	1023	No Dam; Cost
McPhail	William	1881	Multi-purpose dam; 400-Year Alternative; Efficient Use of Folsom; 100-Year (FEMA) Levee
McReynolds	Mike	594	Plan Formulation; NRA
McWilliams	Kevin	66	No Dam; Cost; Plan Formulation; Seismicity; NRA;
Meadows	Sue	1774	No Dam; Plan Formulation; Multi-purpose dam; Visual Impacts
Meancy	Duncan	93	No Dam; NRA; Plan Formulation
Medeiros	Mark	1583	No Dam
Medued	Ben	1440	No Dam; NRA; Plan Formulation
Meehan	William	1821	Economics; 200-Year Alternative
Meehan	Bill	1877	Multi-purpose dam; Economics; 200-Year Alternative
Mehl	Jim	1682	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Melton	Forrest	983	No Dam; Cost
Menard	Mark	183	No Dam; NRA; Cost; Natomas Growth Issue
Mencur	Tim	299	No Dam; Seismicity
Mendelson	Michael	112	No Dam; Natomas Growth Issue; Seismicity; Legal Compliance
Mendez	Desiree	217	NRA; No Dam
Merida	Danielle	1004	Recreation - Upper American; Wildlife/Vegetation - Upper American
Merritt	James	1602	No dam
Merz	John	1959	Mitigation - Natomas; Plan Formulation; Endangered Species; Fisheries - Lower American; EO 11988
Merz	John	1960	Plan Formulation; Level of Protection; Cost
Mettler	Marvin/Lorraine	1231	Multi-purpose dam
Metzenburg	Howard	123	Project Purpose; Wildlife/Vegetation - Upper American; Plan Formulation
Metzger	Loren	503	Plan Formulation; Wildlife/Vegetation - Upper American
Mexas	Merrily	1306	NRA
Meyer	Tiffany	281	No Dam
Meyer	George	603	Plan Formulation
Meyers	Hildy	181	Common Form Comment
Michael	Peter	1226	No Dam
Miller	Maria	654	Common Form Comment
Miller	Daniel	1313	No Dam
Milligan	Jennifer	1131	No Dam; Wildlife/Vegetation - Upper American
Milligan	Morgan	1548	Visual Impacts; No Dam
Milliken	John	1577	Multi-purpose dam

Last name	First name	Contr Numbe	Subjects
Mills	Jeremy	128	No Dam; Inundation Frequency; Cost; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage;
Mills	Jeremy	129	NRA
Mills	Karl	879	Cost; Wildlife/Vegetation - Upper American
Mills	Jerry	1093	No Dam; Wildlife/Vegetation - Upper American
Minami	Amanda	507	Plan Formulation; No Dam; Recreation - Upper American
Minoque	Al	613	No Dam
Minzen	S.	198	No Dam; Plan Formulation
Mischkinsky	Jeff	1096	No Dam; Level of Protection; Project Purpose; Plan Formulation; Efficient Use of Folsom
Mischkinsky	Jeff	1097	Natomas Growth Issue; Plan Formulation; Recreation - Upper American; Operational Criteria of Gates
Mischkinsky	Jeff	1098	Cost; Water Supply Needs
Mitchell	Tony	22	No dam
Mitchell	Julie	212	No Dam; 100-Year (FEMA) Levee/Storage; Recreation - Upper American
Mitchell	Jerry	1860	Economics; Highway 49 Relocation; Cost; Multi-purpose dam; Mitigation - Upper American
Mittal	Raj	618	No Dam; Cost
Miyasack	Lara	511	No Dam; NRA; Recreation - Lower American
Moffet	Anne	233	NRA; No Dam
Moline	James	1352	No Dam
Monahan	Karen	1143	Recreation - Upper American; Wildlife/Vegetation - Upper American; Plan Formulation
Montague	Bettie	653	Common Form Comment
Montague	Jennifer	886	NRA; Wildlife/Vegetation - Upper

Last name	First name	Contr Numbe	Subjects
			American
Montinola	Katrina	1049	NRA; No Dam; Cost
Moody	Matt	489	No Dam; Wildlife/Vegetation - Upper American; Cost; Additional Upstream Storage; Efficient Use of Folsom
Mooney	Sue	1617	Plan Formulation
Moore	Boni	1261	Wildlife/Vegetation - Upper American
Moore	Dean	1563	No Dam
Moore	Greg	1758	Inundation Frequency; Operational Criteria of Gates; 100-Year (FEMA) Levee/Storage; NRA
Moore	Paula	1872	Multi-purpose dam; Plan Formulation; Aggregate Extraction; Cost
Moore	Paula	1873	Efficient Use of Folsom
Moran	Bruce/Sally	856	Common Form Comment
Moran	Martha	1492	No Dam; NRA; Visual Impacts
Moran, Ph.D.	Kelly	706	No Dam; Cost; NRA; Economics
Moreno	Mark	1654	NRA; No Dam; 100-Year (FEMA) Levee/Storage; Wildlife/Vegetation - Upper American; Natomas Growth Issue
Morgan	Pamela	783	No Dam; Water Supply Needs; Plan Formulation
Morgan	Jennifer	864	Project Purpose; Wildlife/Vegetation - Upper American
Morgan	James	1910	Plan Formulation; Cost; Aggregate Extraction; Inundation Frequency
Morgan	James	1911	Plan Formulation; Multi-purpose dam; Operational Criteria of Gates; Water Supply Needs
Morgan	James	1912	Legal Compliance; Plan Formulation; 100-Year (FEMA) Levee/Storage
Morgan	James	2093	Aggregate Extraction; Editorial; Mitigation



Last name	First name	Contr Numbe	Subjects
Morison	Richard	1495	No Dam; 100-Year (FEMA) Levee/Storage
Moritz	Jay/Martha	1551	No Dam; NRA; Plan Formulation
Morrell	Johnny	222	NRA; No Dam
Morris	Toni/Bill	395	Common Form Comment
Morrison	Boyd	975	No Dam; NRA
Morrison	Laurie	1350	Cost; 100-Year (FEMA) Levee/Storage; Visual Impacts
Morrow Ph.D.	Joanne	227	Common Form Comment
Morse	Rick	1724	Plan Formulation; NRA
Morton	Ruth	149	No Dam; Cost
Morton	Lynn	1712	Common Form Comment
Mosen	Nancy	945	No Dam; Plan Formulation
Mosher	Roseann	1735	Common Form Comment
Moskowite	Liz	1015	No Dam
Moss	Suzanne	73	Seismicity
Mostent	Joel	445	No Dam; Recreation - Upper American
Moyer	Anne	350	Cost; Plan Formulation
Mullaly	Mark	1622	Plan Formulation
Mullen	Phillip	1469	Common Form Comment
Muller	Monica	236	NRA; No Dam
Murphy	Peter	739	No Dam
Murphy	Scott	1649	Common Form Comment
Murston	Jan	1339	No Dam; Cost
Myers	Thomas	88	Project Purpose; 100-Year (FEMA) Levee; Cost
Myers	Thomas	2124	Plan Formulation; Level of Protection; Hydrology
Myers	Thomas	2125	Hydrology; Efficient Use of Folsom
Myers	Thomas	2126	Plan Formulation

Last name	First name	Contr Numbe	Subjects
N.	J.	1024	No Dam; Cost
Nagle	Candee	617	No Dam
Nalepa	Cindy	494	No Dam
Neal	William	472	Cost
Neal, M.D.	William	604	Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage; NRA
Nee	Eric/Tekla	326	No Dam; Wildlife/Vegetation - Upper American; Plan Formulation; Cost
Neff	Robert	1438	Common Form Comment
Neff	Nancy	1441	Common Form Comment
Negri	Shelly	513	Plan Formulation
Nelowet	Lisa	1370	Common Form Comment; Seismicity; Water Supply Needs
Nelson	Austin	719	No Dam; Wildlife/Vegetation - Upper American; Cost
Nelson	Mark	1738	Common Form Comment
Nerode	Greg	1294	NRA
Nervik	Elsa	1103	No Dam; Cost; Folsom Reoperation; Natomas Growth Issue
Nervik	Elsa	1104	Recreation - Upper American; Wildlife/Vegetation - Upper American; Sloughing and Sedimentation; Aggregate Extraction; Cost
Nervik	Elsa	1105	Mitigation - Natomas; Plan Formulation
Nesseth	P.	963	No Dam; Cost; Level of Protection; 100-Year (FEMA) Levee/Storage; NRA
Netherwood	Judy	637	No Dam; NRA; Seismicity
Neuman	Margaret	313	No Dam; Plan Formulation; Cost; 100-Year (FEMA) Levee/Storage
Neuman	Cynthia	697	Common Form Comment
Neville	Scott	608	No Dam; Plan Formulation; Wildlife/Vegetation - Upper American

Last name	First name	Contr Numbe	Subjects
Newinger	Doe	754	NRA; 100-Year (FEMA) Levee/Storage; Cost; EO 11988; Endangered Species
Newman	Kathrine	645	No Dam
Ng	Pauline	714	No Dam
Nibler	Vince	1641	Common Form Comment
Nichols	Fred	639	Project Purpose; Common Form Comment
Nicholson	Angie	1361	Cost; Plan Formulation
Nickens	Linda	703	No Dam; Recreation - Upper American
Nimkoft	Peter	1678	No Dam; NRA
Noel	William	262	Common Form Comment
Norman	Susan	1733	Common Form Comment
Novelopo	Tony	514	Visual Impacts; Recreation - Upper American
Novy	Linda	473	No Dam; Recreation - Upper American
Nuyens	Louis	1695	No Dam; 100-Year (FEMA) Levee/Storage; Wildlife/Vegetation - Upper American
Nyborg	Marilyn	376	Common Form Comment
Nygren	Richard	1556	Plan Formulation
O'Brien	Robert	492	Plan Formulation; Cost
O'Brien	Eric	1524	No Dam; Plan Formulation
O'Connell	Dillian	122	No Dam
O'Connell	Allison	836	Cost; NRA
O'Connor	Jerry	1800	No Dam; Recreation - Upper American; Cost; Seismicity
O'Day	Nancy	709	Wildlife/Vegetation - Upper American; Economics; No Dam
O'Hare-Griffith	Kimberly	958	No Dam; Cost; NRA; Level of Protection
O'Keefe	Joe	1351	No Dam

Last name	First name	Contr Numbe	Subjects
O'Malley	Sue	1296	Multi-purpose dam
O'Neil	Kimberly	1743	Common Form Comment
O'Quin	Michael	382	Common Form Comment
O'Regan	E.	1496	No Dam; Cost
O'Yang	Debbie	1363	No Dam
Oberto	Brian	1604	No dam
Oden	Jeff	541	No Dam
Ohlson	Grace	727	400-Year Alternative
Oho	Grace	1452	Cost
Ohst	Gary	1592	No Dam; Level of Protection; 100-Year (FEMA) Levee/Storage; Cost
Okamoto	Kathleen	1136	No Dam; Cost; NRA; Wildlife/Vegetation - Upper American
Olander	J.C.	407	Common Form Comment; Aggregate Extraction; Sloughing and Sedimentation
Oleyar	Maureen	2028	Common Form Comment
Olmstead	Daniel	1908	Legal Compliance; Recreation - Upper American; Multi-purpose dam; 100-Year (FEMA) Levee
Olmstead	Daniel	1909	100-Year (FEMA) Levee/Storage; NRA
Olmsted	Gerald	465	No Dam; Level of Protection; Project Purpose
Olmsted	Kenneth	666	Common Form Comment
Olrich	Frank	331	No Dam; NRA
Olsen	Owen	1020	Common Form Comment
Olsen	Eric	1799	Common Form Comment
Olsen	Dean/Donna	2029	No Dam; NRA
Olsen	Beverly	2036	No Dam
Olson	Lance	209	No Dam; Plan Formulation; Cost
Olson	Kenneth	2004	No Dam; Plan Formulation; NRA

Last name	First name	Contr Numbe	Subjects
Ong	Raymond	904	No Dam
Oram	John	2046	Wildlife/Vegetation - Upper American; NRA
Orman, PE, MSCE	Marc	767	Cost; Plan Formulation; NRA
Orr	Trent	186	No Dam; Recreation - Upper American
Ortiz	Anne	851	No Dam
Ortiz	Madeline	1627	NRA
Osborn	Victoria	575	Cost; No Dam; Plan Formulation
Osborn	Kay	1219	Common Form Comment
Osborne	Jean	1674	Multi-purpose dam
Osborne	Philip	1693	Multi-purpose dam
Osnas	F.	544	No Dam
Otterman	Shari	808	No Dam; NRA
Oyen	Douglas	1139	Cost; Recreation - Upper American Plan Formulation
Ozenick	Phil	601	Economics; No Dam
Pace	Judy	726	Common Form Comment
Pachl	P.R.	661	Efficient Use of Folsom; Cost
Padgett	Oona	610	No Dam; Wildlife/Vegetation - Upper American
Pagni	Robert	289	No Dam
Pagolov	Jason	1427	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American; 100-Year (FEMA) Levee/Storage
Paine	F. Ward	160	No Dam; Plan Formulation
Palerta	Virginia	278	No Dam
Palmer	Francis	213	Common Form Comment
Palmer	Mark	1204	No Dam; Wildlife/Vegetation - Upper American; NRA
Palmieri	R.A.	597	Plan Formulation; NRA

Last name	First name	Contr Numbe	Subjects
Palmini	Richard	1367	No Dam
Pandor	Aiko	451	Common Form Comment
Papadopoulos	Nicholas	937	No Dam; Recreation - Upper American; Level of Protection
Paparian	Michael	345	No Dam; NRA
Pape	Albert/Florence	1619	Multi-purpose dam
Paradise	Matthew	567	No Dam
Parakilas	Janice	1728	Common Form Comment
Pare	Heidi	466	No Dam
Parke	Edith	1488	Common Form Comment
Parker	Darlene	711	Level of Protection; Cost; Recreation - Upper American; Plan Formulation
Parkinson	George	1230	Multi-purpose dam
Parks	Ben	1557	No Dam; Natomas Growth Issue; NRA; 100-Year (FEMA) Levee/Storage
Paru	Barbara	927	Common Form Comment
Paterson	Cathleen	1132	Plan Formulation; Wildlife/Vegetation - Upper American; NRA
Paton	Marilyn	731	Multi-purpose dam
Patrignari	Stuart	113	Plan Formulation; Seismicity; Recreation - Upper American; Upper Canyon Growth Issue; Water Supply Needs
Patterson	Darcie	468	No Dam; Wildlife/Vegetation - Upper American
Patton	Gary	647	Common Form Comment
Patton	Carolyn	863	Project Purpose; Cultural Resources
Paulson	Steve	1801	Wildlife/Vegetation - Upper American; Plan Formulation; Level of Protection; 100-Year (FEMA) Levee/Storage
Payton	Elizabeth	249	Common Form Comment
Pearson	John	2071	Plan Formulation; Multi-purpose

Last name	First name	Contr Numbe	Subjects
			dam; Upper American Land Use; Cost
Peckham	Lamar	1714	Common Form Comment
Peckham	Lamar	2030	Cost; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Pegos	Michael	1224	Wildlife/Vegetation - Upper American; Visual Impacts
Pellar	Harriet	1293	NRA
Penn	Andrew	1635	Plan Formulation; Cost; Wildlife/Vegetation - Upper American
Pennington	Paula	659	Common Form Comment
Pennington	June	1510	Multi-purpose dam
Perala	Donna	1465	Plan Formulation
Perez	Javier	163	No Dam; Operational Criteria of Gates
Perez	Marie	469	Recreation - Upper American
Perkins	Dalee	295	No Dam; Project Purpose
Perkins	Tadd	2174	Plan Formulation; Project Purpose; Inundation Frequency; Aggregate Extraction
Perry	Julie	1753	No Dam; Wildlife/Vegetation - Upper American; Cost; 100-Year (FEMA) Levee/Storage
Personeni	Teresa	501	400-Year Alternative
Peterhans	Laura	348	Plan Formulation
Peters	Cynthia	1588	Wildlife/Vegetation - Upper American; Aggregate Extraction; Operational Criteria of Gates; NRA; 100-Year (FEMA) Levee/Storage
Peterson	Mary	52	No Dam; NRA; Plan Formulation
Peterson	Cathy	809	NRA
Peterson	David	902	Plan Formulation
Peterson	Jeff	995	No Dam
Peterson	Charles	1653	NRA; EO 11990

Last name	First name	Contr Numbe	Subjects
Peterson	Matt	1756	No Dam; Plan Formulation
Pfaff	Belinda	753	Recreation - Upper American
Pharaoh	V.J.	873	Multi-purpose dam; Water Supply Needs;
Phillips	Corley	124	Plan Formulation; Additional Upstream Storage; Fisheries - Lower American; NRA
Phillips	R.J.	844	No Dam; Fisheries - Upper American
Phillips	Shelly	1022	Common Form Comment
Phillips	Wendell	1820	Economics; 200-Year Alternative
Pichler, M.D.	Andrew	68	NRA; No Dam; Plan Formulation
Pickett	Karen	94	No Dam; Wildlife/Vegetation - Upper American; Legal Compliance
Pilcher	Lesley	676	Common Form Comment
Pilcher	Andrew	1565	Common Form Comment
Pinkham	Richard	1509	Plan Formulation; Operational Criteria of Gates; NRA
Pinkstaff	Rosemary	327	Common Form Comment
Pino	Michael	804	Cost; Efficient Use of Folsom
Plageman	Liz	1124	No Dam; Wildlife/Vegetation - Upper American; Cost; NRA; Recreation - Upper American
Plimpton	Jim	1882	Operational Criteria of Gates; Water Supply Needs; Seismicity
Pohl	Kryisia	828	No Dam; Wildlife/Vegetation - Upper American
Polakoff	Michael	510	No Dam; Cost; Fisheries - Lower American; Plan Formulation
Pomares	W.J.	596	Multi-purpose dam
Pomares	W.J.	894	Multi-purpose dam
Popowsky	Kathleen	311	No Dam; Aggregate Extraction; Plan Formulation
Port	Patricia	2100	Multi-purpose dam; Mitigation - Lower American; Plan Formulation
Port	Patricia	2101	Plan Formulation; Cost; Recreation



Last name	First name	Contr Numbe	Subjects
			- Lower American
Port	Patricia	2102	Plan Formulation; Editorial
Port	Patricia	2103	Editorial; Folsom Reoperation; Fisheries - Lower American
Port	Patricia	2104	Fisheries; 150-Year alternative; Mitigation - Lower American; Editorial
Port	Patricia	2105	150-Year alternative; Plan Formulation; Real Estate
Port	Patricia	2106	Real Estate; Plan Formulation; Multi-purpose dam
Port	Patricia	2107	Multi-purpose dam; Real Estate; Wildlife/Vegetation - Lower American
Port	Patricia	2108	Plan Formulation; Editorial
Port	Patricia	2109	Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Lower American; Mitigation - Lower American; Sloughing and Sedimentation; Plan Formulation
Port	Patricia	2110	Plan Formulation; Additional Upsteam Storage
Port	Patricia	2111	Efficient Use of Folsom; Plan Formulation
Port	Patricia	2112	Plan Formulation; Natomas Growth Issue; Aggregate Extraction; Editorial
Port	Patricia	2113	Sloughing and Sedimentation; Wildlife/Vegetation - Upper American; Fisheries -Lower American; Plan Formulation
Port	Patricia	2114	Section 404 (b) (1); Wildlife/Vegetation - Upper American; Plan Formulation
Port	Patricia	2115	Editorial; Wildlife/Vegetation - Upper American; Fisheries - Upper American
Port	Patricia	2116	Wildlife/Vegetation - Upper American; Mitigation; Mitigation - Upper American; Wildlife/Vegetation - Natomas

Last name	First name	Contr Numbe	Subjects
Port	Patricia	2117	Plan Formulation; Folsom Reoperation; Fisheries - Lower American; Endangered Species
Port	Patricia	2118	Endangered Species; Plan Formulation; Agriculture
Port	Patricia	2119	Endangered Species; Mitigation - Natomas; Wildlife/Vegetation - Upper American; Recreation - Natomas
Port	Patricia	2120	Mitigation - Natomas
Porter	Mark	505	No Dam; Project Purpose
Porter	Nick	1703	No Dam; Wildlife/Vegetation - Upper American
Postel	Lucinda	121	No dam
Potter	Harry	14	Economics; Plan Formulation; Level of Protection;
Potter	Harry	44	Economics; Plan Formulation; Efficient use of Folsom;
Potter	Harry	45	Project Purpose; 100-Year (FEMA) Storage
Potter	Daniel	1102	No Dam
Powell	Chelsea	1065	NRA; No Dam; Plan Formulation
Powers	Elizabeth	1493	No Dam
Prata	B.	237	No Dam
Preising	Vince	635	No Dam; Upper Canyon Growth Issue
Prentiss	Michelle	1476	Common Form Comment
Press	John	1652	No Dam; Wildlife/Vegetation - Upper American; Natomas Growth Issue
Price	Keiala	1381	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
Prichett	Sandy	1708	Common Form Comment
Privette	Gregory	642	Common Form Comment
Proano	Rita	1416	Common Form Comment
Proe	Steve	1879	Mitigation - Upper American;

Last name	First name	Contr Numbe	Subjects
			Recreation - Upper American; Plan Formulation; Cost
Proe	Steve	1880	Project Purpose; Aggregate Extraction
Puglizevich	Greg	2044	Cost; Visual Impacts; No Dam
Puhkala	Roy	1554	Multi-purpose dam; Plan Formulation
Purcell	William	712	No Dam
Quiett	Terry/Juanita	1423	Multi-purpose dam
Racciocco	John	1245	No Dam; Recreation - Upper American
Ramsay	Sarah	1335	NRA; Wildlife/Vegetation - Upper American; Cost; Plan Formulation
Ramsey, DVM	Ed	701	Cost; No Dam; Water Supply Needs
Rand	Carlisle	1403	No Dam; Wildlife/Vegetation - Upper American; Recreation - Upper American
Rangel	Nate	1878	Mitigation; Economics; 100-Year (FEMA) Levee/Storage; Additional Upstream Storage; Plan Formulation
Rangel	Nate	2005	Level of Protection; Wildlife/Vegetation - Upper American; Plan Formulation; Aggregate Extraction
Ranier	Leo	660	Plan Formulation; Cost
Ratcliff	Philip	720	400-Year Alternative; Multi-purpose dam
Ratliff	Marcy	263	Common Form Comment
Raventos	Peter	145	Common Form Comment
Rawson, M.D.	Richard	696	Common Form Comment
Rayburn	Richard	2088	Recreation - Lower American; Mitigation - Upper American; Cultural Resources
Rayburn	Richard	2089	Cultural Resources; Recreation - Upper American
Rayburn	Richard	2090	Recreation - Upper American
Rayburn	Richard	2091	Recreation - Upper American

Last name	First name	Contr Numbe	Subjects
Rayburn	Richard	2092	Recreation - Upper American
Rayford	Timothy	1262	No Dam
Raymond	Kristine	370	Cost; No Dam; 100-Year (FEMA) Levee/Storage
Raymond	Bonnie	1154	No Dam
Read	Timon	57	No Dam; Plan Formulation
Rebar	Judith	946	Recreation - Upper American; NRA; Plan Formulation
Redinger	Bobbi	1664	No Dam; Level of Protection
Redslob	Kevin	318	Seismicity; Legal Compliance
Reeb	Robert	2086	Water Supply Needs; Multi-purpose dam
Reece	Terry	577	No Dam; Plan Formulation
Reed	Marjorie	179	No Dam; Operational Criteria of Gates; NRA
Reed	James	1744	100-Year (FEMA) Levee/Storage; NRA
Reese	Amy	1528	No Dam; Natomas Growth Issue; Water Supply Needs; Recreation - Upper American; Wildlife/Vegetation - Upper American
Reese	Erin	1945	Legal Compliance; Economics; Operational Criteria of Gates; Aggregate Extraction;
Reese	Erin	1946	Natomas Growth Issue; Editorial; Legal Compliance; Sloughing and Sedimentation; Seismicity
Reese	Erin	1947	Legal Compliance; Plan Formulation
Reese	Erin	1948	NRA; Mitigation - Natomas; Mitigation - Upper American; Mitigation
Reese	Erin	1949	Mitigation; Mitigation - Natomas; Legal Compliance; Editorial
Reich	Robyn	214	No Dam; NRA
Reidel	Suzanne	317	No Dam
Reinhart	Jeannie	372	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Remas	Jake	1377	No Dam; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Remillard	Jim/Suzanne	1415	Common Form Comment
Rhodes	Richard	1788	No Dam; Plan Formulation
Ribnich	Al	1357	No Dam
Ribnick	Sharyn	880	No Dam
Ribolin	George	1512	Multi-purpose dam
Ricci	Alvin	1587	No Dam
Rich	Ebb	824	Common Form Comment
Rich	Jennifer	845	Common Form Comment
Rich	Sheila	1418	No Dam; NRA; 100-Year (FEMA) Levee
Rich	Dave/Ramona	1534	Multi-purpose dam
Richards	Ron	633	No Dam; Cost; NRA
Richards	Chad	1420	Common Form Comment
Rickard	Laura	1257	Multi-purpose dam
Ricker	James	1899	Cost; Multi-purpose dam; Plan Formulation; 100-Year (FEMA) Levee/Storage
Ricker	James	1900	Natomas Growth Issue; Seismicity; NRA; Recreation - Upper American
Ridder-White	Brooks	34	Recreation - Upper American; Plan formulation
Rideout	Cheryl	843	NRA
Rideout	Mark	1637	Common Form Comment
Riehl	Andrew	399	No Dam; Plan Formulation
Riggi M.D.	Anthony	1584	Common Form Comment
Riley	Meghan	1088	No Dam; Wildlife/Vegetation - Upper American
Riley	Randal	1542	Multi-purpose dam
Ring	David	1421	Cost; Operational Criteria of Gates; Natomas Growth Issue; NRA
Risser Ph.D.	Thomas	932	Cost; No Dam; Plan Formulation

Last name	First name	Contr Numbe	Subjects
Ritter	Richard	1240	No Dam; 100-Year (FEMA) Levee/Storage; Wildlife/Vegetation - Upper American
Ritzman	Dan	17	NRA; Cost; Additional upstream storage; Efficient use of Folsom; 100-Year (FEMA) Levee
Ritzman	Dan	46	Socioeconomics; Wildlife/Vegetation - Natomas
Rivers	Walter	1579	Cost; NRA; Wildlife/Vegetation - Upper American
Robbins	Sue	359	Seismicity; 100-Year (FEMA) Levee/Storage
Roberts	Vanessa	1412	No Dam; Wildlife/Vegetation - Upper American
Roberts	C. Gordon	1621	Multi-purpose dam
Robertson	Mike	1236	No Dam; Cost
Robinson	Rosemary	651	Common Form Comment
Robinson	Rodney	1106	No Dam; Economics; Wildlife/Vegetation - Natomas; Plan Formulation
Robinson	Rodney	1107	Cost
Robinson	Rodney	1211	Seismicity; Cost; Plan Formulation; Inundation Frequency; Operational Criteria of Gates
Robinson	Rodney	1212	Highway 49 Relocation; EO 11988; Natomas Growth Issue
Robison	Jason	506	No Dam
Rodgers	Peggy	438	Plan Formulation
Rodgers	Garnet	687	Cost, 100-Year (FEMA) Levee/Storage
Rodgers	Geoffrey	1626	Cost; No Dam; 100-Year (FEMA) Levee/Storage
Rodgers	Bud	1811	Economics; 200-Year Alternative
Rodowig	Barbara/Joe	362	No Dam; NRA
Rodriguez	Omar	1446	No Dam; NRA
Roehr	Judith	125	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Rogen	Bob	270	NRA; No Dam
Rogers	Matt	64	Cost; Water Supply Needs; NRA; Seismicity
Rogers	Flora	852	Wildlife/Vegetation - Upper American; NRA
Rogers	Nicole	953	Wildlife/Vegetation - Upper American; NRA; Cost
Rogers	Sherrell	971	No Dam; Wildlife/Vegetation - Upper American; NRA; Cost
Rogers	Danyell	972	No Dam; Wildlife/Vegetation - Upper American; NRA; Cost; Efficient Use of Folsom
Rognero	Hillary	542	No Dam
Rolff	Everett	692	No Dam; Economics
Rosales	Jose	401	No Dam; NRA
Rose	Nicholas	243	Common Form Comment
Rose	Angela	1776	Inundation Frequency; Natomas Growth Issue; Plan Formulation; Endangered Species; NRA
Rose	Ellsworth	2002	Seismicity; Plan Formulation
Rosenberg	Michael	62	No Dam; NRA; Natomas Growth Issue; Cost; Project Purpose
Rosenberg	Ryan	275	No Dam; 100-Year (FEMA) Levee/Storage; NRA
Rosenthal	Richard	204	Level of Protection; Plan Formulation
Rosier	Julie	986	Level of Protection; Cost
Rosier	Michele	1447	100-Year (FEMA) Levee/Storage
Ross	Brian/Karen	1171	Multi-purpose dam
Rosslar	Robert	1299	NRA; Plan Formulation
Rossmann	Antonio	2097	Plan Formulation; Recreation - Upper American; Legal Compliance; Mitigation - Upper American
Rossmann	Antonio	2098	Project Purpose; Recreation - Upper American; Cultural Resources
Rossmann	Antonio	2099	Plan Formulation; Folsom

Last name	First name	Contr Numbe	Subjects
			Reoperation
Roth	Robert	841	No Dam; NRA
Roth	Ronald	1330	NRA; No Dam; Plan Formulation
Rountree	Jerre	285	Plan Formulation; Cost
Rowen	Sara	1225	No Dam; Cost
Rubenstein	Elana	1407	No Dam; Recreation - Upper American; 100-Year (FEMA) Levee/Storage
Rubin	Ellen	1320	NRA
Ruff	Kenneth	1011	No Dam
Rumery	Todd	536	No Dam
Rush, M.D.	Elizabeth	548	No Dam
Russell	Gayle	257	Common Form Comment
Russell	Craig	1539	Wildlife/Vegetation - Upper American
Ryall	Marjorie	434	Operational Criteria of Gates; Wildlife/Vegetation - Upper American; No Dam; 100-Year (FEMA) Levee/Storage
Ryan	Mitchell	805	Plan Formulation
Ryan	Mike	1241	Plan Formulation; Cost
Ryan	R.E.	1276	No Dam
Ryan	Michael	1918	Endangered Species; Wildlife/Vegetation - Upper American; Multi-purpose dam; Operational Criteria of Gates
Ryan	Michael	1919	NRA
Rypins	Beth	27	Level of protection; cost; 150-year alternative
Salas	L.	786	No Dam
Salla	Victor	583	Plan Formulation
Sallee	Tim	568	No Dam
Salm, M.D.	Andrew	691	Common Form Comment
Sampson	Suzanne	96	Common Form Comment



Last name	First name	Contr Numbe	Subjects
Sanders	Charles/Nancy	479	Common Form Comment
Sanders	Dwight	2064	Legal Compliance; Folsom Reoperation
Sanders	Dwight	2065	Natomas Growth Issue; Additional Upstream Storage
Sandoval	Victor	87	NRA
Sands	Richard	565	Plan Formulation; Cost
Sanossian	Martha	997	Recreation - Upper American; Wildlife/Vegetation - Upper American
Saucedo	Rachel	884	Wildlife/Vegetation - Upper American; No Dam
Saunders	David	1633	No Dam; Wildlife/Vegetation - Upper American
Sawhill	Bob	1347	Common Form Comment
Sawhill	Risa	1597	Common Form Comment
Schaefer	Frederick	1099	No Dam; Plan Formulation; Cost; Project Purpose
Schaefer	Frederick	1100	Seismicity; Recreation - Upper American; Aggregate Extraction; No Dam
Schaefer	Frederick	2073	Plan Formulation; Cost; Project Purpose; Seismicity
Schaefer	Frederick	2074	Plan Formulation; Aggregate Extraction; Cost
Schaefer	Frederick	2075	Cost; Economics; Highway 49 Relocation
Schaefer	Frederick	2076	Cost; Multi-purpose dam; Seismicity
Schaefer	Frederick	2077	Multi-purpose dam; Plan Formulation
Schaefer	Frederick	2078	Plan Formulation; Seismicity; Multi-purpose dam
Schaefer	Frederick	2079	Seismicity
Schaefer	Frederick	2080	Seismicity; Cost; Visual Impacts; Aggregate Extraction
Schaefer	Frederick	2081	Aggregate Extraction; Mitigation;

Last name	First name	Contr Numbe	Subjects
			Hydrology
Schaefer	Frederick	2082	400-Year Alternative; Sloughing and Sedimentation; Multi-purpose dam; Level of Protection; Project Purpose
Schaefer	Frederick	2083	Cost; Multi-purpose dam
Schafer	Irene	491	Plan Formulation; Project Purpose
Schafer	Kate	587	Recreation - Upper American; Cost; Natomas Growth Issue
Schantaler	Christy	580	Recreation - Upper American
Scheenestra	Debra	61	Cost; Natomas Growth Issue
Schieber	James	499	No Dam; Plan Formulation
Schloss	Jeff	369	Cost; No Dam; NRA; 100-Year (FEMA) Levee/Storage
Schmidt	E.H.	1046	Multi-purpose dam
Schmidt	Skip	1197	Plan Formulation; Multi-purpose dam
Schmidt	Robert/Doris	1295	Multi-purpose dam
Schneider	Paul	420	Cost; NRA; 100-Year (FEMA) Levee/Storage;
Schneider	David	791	NRA; No Dam; Cost; Wildlife/Vegetation - Upper American; Plan Formulation
Schneider	Walter	1050	No Dam
Schneider	Cove	1561	Level of Protection; Cost
Scholl	Marcelli	1432	Seismicity
Schriver	Tammy	329	Common Form Comment
Schulbin	Tom	578	No Dam; Recreation - Upper American
Schuler	Urs	1609	No Dam; Wildlife/Vegetation - Upper American
Schure	Denis	81	Cost; NRA
Schuster	Angelique	504	No Dam
Schuyler	Noah	1338	No Dam; 100-Year (FEMA) Levee/Storage

Last name	First name	Contr Numbe	Subjects
Schwank	Bruce	1611	No Dam
Schwartz	Harvey	296	No Dam
Schwartz	Raymond	436	NRA
Schwartz	J.S.	1277	No Dam; Plan Formulation
Schwartz	Gerald	2175	Multi-purpose dam
Schwartz	Gerald	2176	Folsom Reoperation
Schweid	Maria	1244	No Dam; Wildlife/Vegetation - Upper American
Scott-Picher	Lewis/Joanna	1333	Common Form Comment
Scoville	Eric	421	No Dam; Recreation - Upper American; Plan Formulation
Scribner	Penny	1559	Common Form Comment
Scribner	Laura	1589	No Dam; 100-Year (FEMA) Levee/Storage; Plan Formulation; Level of Protection
Sdrolze	Volker	1606	No Dam
Seaborg	Dianne	778	Recreation - Upper American
Seeburg	Ron	117	Recreation - Upper American
Seibert	Brian	157	No Dam; Level of Protection
Seibold	Reid	150	No Dam
Selkirk	Mary	7	Level of protection
Semenson	Vince	1424	Common Form Comment
Semple	Judith	801	Plan Formulation; Cost;
Senelick	Karen	589	NRA; Project Purpose
Sepakowski	Jean-luc	1655	Common Form Comment
Shain	Cy/Ann	549	Common Form Comment
Shaw	Karin	1486	Common Form Comment
Sheeter	Joan	629	No Dam; Efficient Use of Folsom
Sheila	Chernly	815	Recreation - Upper American; Economics
Sheilds	Bruce	496	Wildlife/Vegetation - Upper American; Seismicity; Plan

Last name	First name	Contr Numbe	Subjects
			Formulation
Shell	Laverne	366	Wildlife/Vegetation - Upper American; Cost; 100-Year (FEMA) Levee/Storage; Natomas Growth Issue
Shepard	Allison	1083	NRA
Shepherd	Trevor	584	No Dam; Recreation - Upper American
Shepherd, Sr.	Thomas	1656	Legal Compliance; Highway 49 Relocation; Upper Canyon Growth Issue; Aggregate Extraction; Plan Formulation
Shepherd, Sr.	Thomas	1657	Water Quality; Legal Compliance; Aggregate Extraction; Natomas Growth Issue
Shepherd, Sr.	Thomas	1658	Traffic - Auburn; Legal Compliance; Wildlife/Vegetation - Lower American; Multi-purpose dam;
Shepherd, Sr.	Thomas	1659	Water Supply Needs; Economics; Multi-purpose dam;
Shepherd, Sr.	Thomas	1660	Economics; Water Supply Needs
Shepherd, Sr.	Thomas	1661	Multi-purpose dam; Legal Compliance
Sheport	Jill	487	No Dam; Recreation - Upper American; Wildlife/Vegetation - Upper American; NRA; Cost
Shepphard	Susan	992	No Dam
Sherman	Elicia	431	No Dam
Sherman	Jesse	1576	Common Form Comment
Sherwood	Lee/Cheryl	1256	No Dam; NRA
Shifflet	Harold	1883	Multi-purpose dam
Shiller	Loren	1379	No Dam; Recreation - Upper American
Shimeall	Clark	1793	Common Form Comment
Shokraft	Allison	1126	No Dam; Cost; Wildlife/Vegetation - Upper American; NRA
Sholl	Clint	1405	400-Year Alternative

Last name	First name	Contr Numbe	Subjects
Shuman	Todd	1730	NRA; 100-Year (FEMA) Levee/Storage
Shure	Bonnie/Douglas	741	Common Form Comment
Sider	Gary	1146	No Dam
Siemon	R.G.	2001	Seismicity; Water Quality - Upper American; Aggregate Extraction; Highway 49 Relocation; NRA
Sievert	Claus	456	No Dam; Legal Compliance; Economics;
Sigg	Jacob	2017	No Dam; Cost; Wildlife/Vegetation - Upper American; Efficient Use of Folsom; NRA
Silver	Ellen	107	No Dam; Cost
Silver	Michael/Christine	705	Common Form Comment
Silver, M.D.	Dan	453	100-Year (FEMA) Levee/Storage; Cost
Simmerman	Barbara	561	Plan Formulation; Level of Protection; Cost
Simmons	Dan	1646	Common Form Comment
Simning	Pamela	1787	Common Form Comment
Simonson	William	1014	No Dam
Simpson	David	141	Common Form Comment
Simril	Scott	574	Plan Formulation; Cost; NRA
Siri	Jean	655	Common Form Comment
Skidmore	Nicola	1401	No Dam; NRA; Wildlife/Vegetation - Upper American
Skinner	JoAnne	53	Common Form Comment
Skinner	Mary	288	Plan Formulation; Cost; NRA
Skinner	Elizabeth	871	No Dam; NRA; Recreation - Upper American
Sloan	J.	882	No Dam
Sloan	Colleen	1814	Economics; 200-Year Alternative
Slomoff	Max	1372	Wildlife/Vegetation - Upper American; Recreation - Upper American

Last name	First name	Contr Numbe	Subjects
Smart	Tanya	182	Common Form Comment
Smernoff	David	1677	No Dam; NRA; Plan Formulation
Smith	Barbara	218	NRA; No Dam
Smith	Meg	255	No Dam; Cost; Inundation Frequency; 100-Year (FEMA) Levee/Storage
Smith	Susan	641	Common Form Comment
Smith	Ralph	771	Common Form Comment
Smith	Shira	827	No Dam; NRA; Recreation - Upper American
Smith	Todd	1151	Cost; Plan Formulation
Smith	Ron	1196	400-Year Alternative; Plan Formulation
Smyden	David	1373	400-Year Alternative
Snyder	Bernadette	912	No Dam; Cost; Recreation - Upper American; NRA; Seismicity
Snyder	Bernadette	913	Plan Formulation
Sobey	Douglas	324	Cost; 100-Year (FEMA) Levee/Storage; Recreation - Upper American; Wildlife/Vegetation - Upper American; NRA
Sochet	Marty	664	Level of Protection
Soderlund	James	1138	Plan Formulation
Son	Dan	387	No Dam
Sood	Vince	1087	No Dam
Soske	Don	961	No Dam; Cost; Level of Protection; NRA
Soto	Mario	1417	No Dam; NRA; Recreation - Upper American
Souter	Barbara	280	Seismicity; No Dam
Southers	Gary/Laura/Jessie	1648	Common Form Comment
Spandorf	Mark	756	Plan Formulation; Recreation - Upper American
Sparkman	Roberta	1291	NRA

Last name	First name	Contr Numbe	Subjects
Spaulding	Christina	528	No Dam; Fisheries - Lower American; Water Supply Needs
Speakman	Jim	106	No Dam; Water Supply Needs; Seismicity; Recreation - Upper American
Speakman	Sarah R.	538	No Dam; Wildlife/Vegetation - Upper American
Spiller	Bettina	980	No Dam; Cost; Plan Formulation
Spitzer	Andrew	1713	Common Form Comment
Sponaugle	Ellen	998	No Dam; Recreation - Upper American
Spotts	Richard	2157	No Dam; Wildlife/Vegetation - Upper American; Plan Formulation
Spotts	Richard	2158	Mitigation; NRA
St. John	James	732	Multi-purpose dam
Staats	Rick	1199	Plan Formulation; Water Supply Needs; Visual Impacts; Fisheries - Lower American; Cost
Staats	Rick	1200	Plan Formulation
Stanbury	Susan	1796	100-Year (FEMA) Levee/Storage; Plan Formulation; No Dam
Stark	Ronald	1259	No Dam; Cost; Wildlife/Vegetation - Upper American
Stensgaard	Michael	1317	No Dam
Stephens	Scott	1037	No Dam; NRA
Stern	Robert	114	No Dam; Natomas Growth Issue; Project Purpose
Steuble	Laura	1388	No Dam
Stevens	Timothy	540	No Dam; Plan Formulation; Cost
Stevens	Kris	1763	No Dam; 200-Year Alternative; Project Purpose; Plan Formulation
Stevenson	Shirley	1238	No Dam; Cost; Wildlife/Vegetation - Upper American
Stevenson	Scott	1705	Common Form Comment
Stilwell	Virginia	308	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Stockly	Robert	485	Plan Formulation; Efficient Use of Folsom
Stoddard	Ricky	347	Wildlife/Vegetation - Upper American
Stoddard	Angela	534	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Stone	LuLu	161	Plan Formulation
Stone		356	
Stone	Dorothy	361	No Dam; Project Purpose
Stone	Craig	539	No Dam; Wildlife/Vegetation - Upper American
Stork	Ronald	1961	Mitigation; 100-Year (FEMA) Levee/Storage; NRA
Stork	Ronald	1962	Natomas Growth Issue; Multi-purpose dam; Operational Criteria of Gates; Aggregate Extraction; Recreation - Upper American
Stork	Ronald	1963	Plan Formulation; Project Purpose; Natomas Growth Issue
Stork	Ronald	1964	Plan Formulation; Project Purpose
Stork	Ronald	1965	Plan Formulation; 150-Year Alternative
Stork	Ronald	1966	Plan Formulation; Mitigation - Upper American
Stork	Ronald	1967	Cost; Wildlife/Vegetation - Upper American; Aggregate Extraction; Legal Compliance
Stork	Ronald	1968	Aggregate Extraction; Highway 49 Relocation
Stork	Ronald	1969	Operational Criteria of Gates; Plan Formulation; Multi-purpose dam
Stork	Ronald	1970	Cost; Plan Formulation; Folsom Reoperation
Stork	Ronald	1971	Efficient Use of Folsom; Folsom Reoperation; Recreation - Upper American
Stork	Ronald	1972	Recreation - Upper American;



Last name	First name	Contr Numbe	Subjects
			Aggregate Extraction
Stork	Ronald	1973	Recreation - Upper American; Cultural Resources
Stork	Ronald	1974	Recreation - Upper American; Project Purpose; NRA
Stork	Ronald	1975	Cultural Resources; Aggregate Extraction; Inundation Frequency; Plan Formulation
Stork	Ronald	1976	Plan Formulation
Stork	Ronald	1977	Fisheries - Lower American; Wildlife/Vegetation - Upper American; Hazardous and Toxic Waste; Air Quality
Stork	Ronald	1978	Legal Compliance; Plan Formulation
Stork	Ronald	1979	Highway 49 Relocation; Traffic - Auburn; Socioeconomics; Noise; Legal Compliance
Stork	Ronald	1980	Legal Compliance; Noise; Upper Canyon Growth Issue; Sloughing and Sedimentation; Water Quality - Upper American
Stork	Ronald	1981	Sloughing and Sedimentation; Operational Criteria of Gates; Seismicity
Stork	Ronald	1982	Seismicity; Mitigation; Plan Formulation; Wildlife/Vegetation - Upper American
Stork	Ronald	1983	Plan Formulation; Project Purpose; 100-Year (FEMA) Levee
Straight	Catherine	1736	Common Form Comment
Straub	Douglas	1663	Cost; Recreation - Upper American; Plan Formulation
Straus Straus	Jane Jane	259	Common Form Comment
Strauss	George	63	Cost; Wildlife/Vegetation - Upper American; Plan Formulation; NRA
Strecker	Lloyd	21	Cost
Streetman	J.	266	Common Form Comment
Striplen	Harvey	1891	Recreation - Upper American;

Last name	First name	Contr Numbe	Subjects
			Multi-purpose dam; Wildlife/Vegetation - Upper American; Water Supply Needs
Stripten	Chuck	675	NRA
Strohbehn	Sarah	1450	NRA; Level of Protection
Studman	Dave	2096	Fisheries - Upper American
Sullivan	Kay	256	No Dam; NRA; Project Purpose; Plan Formulation
Sullivan	Joan	1740	Common Form Comment
Sullivanq	Kay	1520	No Dam; 100-Year (FEMA) Levee/Storage
Summers	Edwin/Lois	763	Common Form Comment
Sundeen	Stacy	190	No Dam; NRA; Cost; Project Purpose
Sutherland	David	1272	No Dam; NRA; Plan Formulation; Recreation - Upper American
Sutler	Rod	838	No Dam
Sutliff	Matthew	267	Common Form Comment
Suylor	B.J.	1009	No Dam; Visual Impacts
Swanson	Oona	1384	No Dam; Recreation - Upper American
Sweeney	James	1944	Multi-purpose dam; Water Supply Needs;
Swenson	Ramona	818	Plan Formulation; Wildlife/Vegetation - Upper American
Swiezico	Jim	475	No Dam
Swire	Tom	394	Common Form Comment
Takaro	Mark	1749	No Dam; Cost; Additional Upstream Storage
Tan	Caroline	1651	NRA; No Dam; 100-Year (FEMA) Levee/Storage
Tanamucchi	Jared	144	Recreation - Upper American; Plan Formulation
Tanimoto	Herb	2024	Visual Impacts; Plan Formulation; Recreation - Upper American; Cultural Resources; Cost

Last name	First name	Contr Numbe	Subjects
Tanimoto	Herb	2025	200-Year Alternative
Tanner	Scott	1153	No Dam; Cost
Tappel	Mary	1206	Plan Formulation; Efficient Use of Folsom
Tappel	Mary	1207	Plan Formulation; Natomas Growth Issue
Tartar	Robert/Kayoto	925	NRA; Recreation - Upper American; Plan Formulation
Tate	L.	400	No Dam; Plan Formulation
Taylor	William M.	13	Common Form Comment
Taylor	Tom	38	Multi-purpose dam; Water supply needs; plan formulation; project purpose
Taylor	Dorothy	39	Water supply needs
Taylor	Dashiell	402	No Dam; NRA
Taylor	Nancy	476	Common Form Comment
Taylor	Mark	681	No Dam; Plan Formulation; Cost; Seismicity; Natomas Growth Issue
Taylor	Lisa	1077	Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee
Taylor	Yaim	1222	Recreation - Upper American; Plan Formulation; Wildlife/Vegetation - Upper American
Taylor	Mark	1905	Plan Formulation; Project Purpose; Efficient Use of Folsom; Natomas Growth Issue
Taylor	Mark	1906	Sloughing and Sedimentation; Seismicity; Plan Formulation;
Teague	Donald	408	No Dam; Plan Formulation; Cost; NRA
Tedesco	Nicole	1027	Common Form Comment
Teevarq	Caron	1409	Wildlife/Vegetation - Upper American; Recreation - Upper American
Teichgraber	Tamara	441	Plan Formulation; Cost; Efficient Use of Folsom;
Tejra	David/Saundra	1243	Common Form Comment

Last name	First name	Contr Numbe	Subjects
Elischale	Nicholas	1392	No Dam; Sloughing and Sedimentation; Wildlife/Vegetation - Upper American
Terborgh	John	588	Economics
Tessmann, Ph.D.	Rita	83	No Dam; Cost; 100-Year (FEMA) Levee/Storage
Testerman	Marvin	1715	Common Form Comment
Thatch	Gregory	1984	Project Purpose; Natomas Land Use; 400-Year alternative
Thatch	Gregory	1985	Natomas Protection Alternatives; Land Use - General; Editorial; Agriculture; Natomas Growth Issue
Thatch	Gregory	1986	Natomas Growth Issue; Hazardous and Toxic Waste; Water Quality - Natomas
Thatch	Gregory	1987	Editorial; Water Quality; Water Quality - Natomas; Natomas Growth Issue
Thatch	Gregory	1988	Air Quality; Fisheries - Lower American; Wildlife/Vegetation - Lower American; Editorial; Land Use - General
Thatch	Gregory	1989	Fisheries; Fisheries - Lower American; Wildlife/Vegetation - Upper American
Thatch	Gregory	1990	Wildlife/Vegetation - Upper American; Editorial
Thatch	Gregory	1991	Mitigation - Upper American; Wildlife/Vegetation - Upper American; Wildlife/Vegetation - Lower American
Thatch	Gregory	1992	Wildlife/Vegetation - Lower American; Endangered Species
Thatch	Gregory	1993	Endangered Species
Thatch	Gregory	1994	Endangered Species; Cultural Resources
Thatch	Gregory	1995	Agriculture; Natomas Growth Issue
Thatch	Gregory	1996	Traffic - Natomas; Noise; Recreation - Lower American; Natomas Growth Issue

Last name	First name	Contr Numbe	Subjects
Thatch	Gregory	1997	Recreation - Lower American; Recreation - Upper American; Socioeconomics
Thatch	Gregory	1998	Visual Impacts; 400-Year Alternative; Natomas Growth Issue; Socioeconomics
Thatch	Gregory	1999	Natomas Growth Issue; Editorial; Endangered Species
Thatch	Gregory	2000	Aggregate Extraction; Editorial; 400-Year Alternative
Thaya	Sheri	1755	No Dam
Theilen	Francine	909	No Dam; Plan Formulation; Cost; NRA
Thill	Kate	55	NRA; Cost; Plan Formulation
Thom	Kenneth	1445	Common Form Comment
Thomas	Leonard	110	No Dam; NRA
Thomas	Harold	461	No Dam; Mitigation - Upper American; Fisheries - Lower American
Thomas	Bruce	1422	No Dam; NRA; 100-Year (FEMA) Levee/Storage
Thomas	Douglas	1511	Plan Formulation; Recreation - Upper American; Visual Impacts
Thomas	Bill	1625	Recreation - Upper American; Wildlife/Vegetation - Upper American; Cost
Thomas	Christopher	1748	Multi-purpose dam
Thomasson	Scott	1066	No Dam; Wildlife/Vegetation - Upper American
Thompson	Leilani	766	No Dam; Recreation - Upper American
Thompson	Stacy	1425	Common Form Comment
Thorne	Harold	1739	Common Form Comment
Thorne	Gene	2095	Multi-purpose dam; NRA
Threadgill	Charles	1246	No Dam
Thureson	Erik	1145	Cost; Wildlife/Vegetation - Upper American

Last name	First name	Contr Numbe	Subjects
Thurston	Linda	830	No Dam; NRA
Thysen	Mark	1612	Common Form Comment
Thysen	Mark	1671	No Dam; 100-Year (FEMA) Levee/Storage
Tibbott	Emily	1187	No Dam; Level of Protection; Natomas Growth Issue; Cost
Tichenor	Steven	254	Common Form Comment
Tilton	Janis	457	No Dam
Tipler	Ruth	1600	No Dam
Toal	Ted	354	No Dam; Cost; Plan Formulation; Natomas Growth Issue; NRA
Toal	Ted	355	Plan Formulation; Recreation - Lower American; Socioeconomics
Tobasson	John	866	No Dam
Toland	William	1750	Multi-purpose dam
Tom	Aimee	850	No Dam; Wildlife/Vegetation - Upper American
Tom	Candace	1305	No Dam
Tomczack	Mike	1076	No Dam
Toombs	Ronald	529	No Dam; NRA; Cost
Topper	Laurence	92	No Dam; Cost
Tourzan	David	349	Plan Formulation
Towle	Shannon	857	Recreation - Upper American
Treadwell	Dwain	759	Multi-purpose dam; Water Supply Needs; Project Purpose;
Tringali	Tim	813	No Dam
Tripp	Betty	1070	Multi-purpose dam
Tripp	Jennifer	1857	Cost; Multi-purpose dam; No Dam
Tripp	Richard	1858	Cost; Multi-purpose dam; No Dam
Trunnel	Arthur/Marlene	1571	Common Form Comment
Turner	Kellie	1251	No Dam
Turner	Karyn	1454	Plan Formulation

Last name	First name	Contr Numbe	Subjects
Uhler	Kirk	1191	Plan Formulation
Uhler	Kirk	1817	Economics; 200-Year Alternative
Uhuil	Rol	1135	No Dam; NRA
Ulloth	John Jay	1101	No Dam; Seismicity; Level of Protection
Unger	Dorren	1365	Seismicity; NRA; Plan Formulation; Recreation - Upper American
Urata	Monica	988	No Dam; NRA; Cost
Uren	Dylan	1406	No Dam; Wildlife/Vegetation - Upper American
Van	Bruce	1269	No Dam
van de Zilver	Eric	1119	Cost; Recreation - Upper American
van de Zilver	Valerie	1120	Level of Protection; Cost; Recreation - Upper American; NRA
Van Gigch	John	772	Common Form Comment
Van Gigch	Ann	774	Common Form Comment
Van Gigch, Jr.	John	773	Common Form Comment
Van Tress	Alan	108	Legal Compliance; Cost
Vanderwilt	William J.	47	No dam; Plan Formulation; NRA; 100-year (FEMA) Levee/Storage
Vecchiarelli	Rocky	1003	Wildlife/Vegetation - Upper American
Vejtasa	Kathrine	1676	No Dam; Plan Formulation
Velling	Steve	519	No Dam; Level of Protection
Venditti	Bob	480	Common Form Comment
Venosta	Edwaal	221	NRA; No Dam
Vicain	Donald	1179	Multi-purpose dam; Cost; Recreation - Upper American
Villaum	Daniel	1536	Common Form Comment
Vitovska	Stepa	941	No Dam
Vodrazva	Ed	272	No Dam
Voehl	Albert	938	Recreation - Upper American; Plan

Last name	First name	Contr Numbe	Subjects
			Formulation
Voight	Joan	322	Common Form Comment
Von Borstel	Carol	1894	Recreation - Upper American; Wildlife/Vegetation - Upper American; Aggregate Extraction; Plan Formulation
Voyles	Glen/Ellen	1326	No Dam; Cost; 100-Year (FEMA) Levee/Storage
Vugunes	Mark	991	Cost; Visual Impacts; 100-Year (FEMA) Levee/Storage
Vurek	Aaron	1270	No Dam; Recreation - Upper American
Wagner	Marty	314	Level of Protection; Cost; Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Wagner	William	590	Plan Formulation; Recreation - Upper American
Wahnsiedler	Evelyn	1780	Common Form Comment; Seismicity
Wahrenbrock	Steve	917	No Dam; Cost; Recreation - Upper American; Plan Formulation
Walcott	Wister	923	Cost; Wildlife/Vegetation - Upper American; NRA
Walkinshaw	Michael	1692	Common Form Comment
Wallace	Betty	1286	Multi-purpose dam
Wallen	Charles/Patricia	708	No Dam; Cost; Plan Formulation; Water Supply Needs
Wallen	Ingrid	758	Seismicity; Common Form Comment; Cost;
Waller	Jeffery	86	No Dam
Wallin	Todd	1130	Plan Formulation
Wallin	Paul	1142	Cost; 100-Year (FEMA) Levee/Storage
Wallington	Melanie	1720	Common Form Comment
Wallis	Lisa	1628	100-Year (FEMA) Levee/Storage; Level of Protection
Walmsley	John	669	Common Form Comment



Last name	First name	Contr Numbe	Subjects
Walt	Kevin	920	No Dam; Recreation - Upper American; Cost; 100-Year (FEMA) Levee/Storage
Walters	Helen	32	150-year alternative; seismicity; 200-year alternative
Wang	Fanny	713	Wildlife/Vegetation - Upper American; Level of Protection; Recreation - Upper American
Warburton	Michael	826	Cost; Economics; Plan Formulation
Wardrip	Greg	1884	Cost
Warfield	David	1522	Plan Formulation; Cost; Wildlife/Vegetation - Upper American; Natomas Growth Issue
Warfield	David	1901	Plan Formulation; NRA; Project Purpose; Wildlife/Vegetation - Upper American
Warfield	David	1902	Mitigation - Upper American; Cost; No Dam; Plan Formulation
Warren	Leslie	247	Economics; Level of Protection; Plan Formulation; NRA
Warren	Leslie	248	Plan Formulation
Warren	Elliot	251	No Dam; Project Purpose
Warson	Robert	1792	Common Form Comment
Washbauer	Marius	1760	Common Form Comment
Washburn	Charles	2060	Plan Formulation; Wildlife/Vegetation - Upper American; Project Purpose;
Washburn	Charles	2061	Plan Formulation; Folsom Reoperation
Washburn	Charles	2062	Plan Formulation; Aggregate Extraction
Washington	Eugene	305	Multi-purpose dam
Wasielewski	Jeff	380	Common Form Comment
Waters	Michelle	1068	No Dam; Endangered Species
Watson	Ethelmae	1202	Seismicity; Recreation - Upper American; Upper Canyon Growth Issue

Last name	First name	Contr Numbe	Subjects
Watson	Chuck	2140	Plan Formulation; Recreation - Lower American
Watson	Chuck	2141	Recreation - Lower American
Watson	Chuck	2142	Recreation - Lower American
Watson	Chuck	2143	Recreation - Lower American
Watters	Charles	693	No Dam; Plan Formulation;
Wauter	William	1778	Plan Formulation; NRA
Weagly D.V.M.	Nancy	1054	No Dam
Weaver	Hazel	1553	Common Form Comment
Webb	D.L.	116	Common Form Comment
Webb	Sally Ann	169	No Dam; Plan Formulation
Webb	Michael	175	No Dam; NRA; Plan Formulation
Webb	Jim	2072	Multi-purpose dam; Upper American Land Use; Plan Formulation
Webber	Adrianna	67	Common Form Comment
Weber	Danielle	310	No Dam; Plan Formulation
Weber	Joseph	816	Fisheries - Upper American; Plan Formulation
Weber	Alan	1679	Multi-purpose dam
Webster	John	138	Common Form Comment
Weddell	George	2144	200-Year alternative; Water Supply Needs; Multi-purpose dam; 100-Year (FEMA) Levee
Weddell	George	2145	Upper American Land Use; Editorial
Weddle	Roy	195	No Dam
Wehrcamp	Michael	383	Common Form Comment
Weiler	Alan	1122	Plan Formulation
Weinberg	William	5	100-year (FEMA) Levee/Storage; Seismicity; Economics; Socioeconomics; Wildlife/Vegetation - Upper American
Weinberg	William	41	Wildlife/Vegetation - Upper American

Last name	First name	Contr Numbe	Subjects
Weiser	Kurt	823	Wildlife/Vegetation - Upper American; Recreation - Upper American
Weiss	Ed	203	No Dam; Plan Formulation
Weldon	Kyle	595	Cost; Plan Formulation
Well	Mary	1032	Cost; Multi-purpose Dam
Wellencamp	Paul	1566	Cost; Plan Formulation
Wells	Erin	829	No Dam; Wildlife/Vegetation - Upper American
Wells	Amanda	1371	100-Year (FEMA) Levee
Werner	Lynn	1325	100-Year (FEMA) Levee/Storage; Cost; Operational Criteria of Gates
Werner	Lynn	1761	No Dam; NRA; Wildlife/Vegetation - Upper American
Werschkul1	Grant	1545	100-Year (FEMA) Levee/Storage; NRA; Operational Criteria of Gates; Aggregate Extraction
Wescott	Brian	1647	Common Form Comment
West, M.D.	Mariquita	391	Common Form Comment
Westenbarger	Anita	2019	Common Form Comment
Weston	Scott	1581	NRA; Cost; Plan Formulation
Whang	Evn Joo	906	No Dam; Plan Formulation
Wheeler	Marcy	261	No Dam; NRA
Whetzell	David	1623	No Dam; NRA; Plan Formulation
Whisonand	M.	859	No Dam; Wildlife/Vegetation - Lower American
Whistler	Brian	291	No Dam
White	Erric	1266	Visual Impacts
White	Cindy	1327	No Dam; Plan Formulation
White	Nancy	1369	Common Form Comment
White	Donald	2130	Level of Protection; Plan Formulation
White	Wayne	2131	See Dept. of Interior letter.

Last name	First name	Contr Numbe	Subjects
Whitehill	David	1673	Common Form Comment
Whitten	Vesta	1856	Cost; Multi-purpose dam; No Dam
Whooley	John	674	No Dam; Cost
Whorley	Jon/Jeanette	146	NRA
Wichelman	S.	1078	No Dam; Cost; Plan Formulation
Wilcoxon	Jeremy	825	No Dam
Wilkenson	Robert	638	No Dam; 100-Year (FEMA) Levee/Storage
Wilkenson	Julie	875	Wildlife/Vegetation - Upper American
Wilkerson	Heather	900	No Dam
Wilkie	Elizabeth	2027	No Dam; NRA; Plan Formulation; Cost
Wilkie	Jocelyn	2038	Wildlife/Vegetation - Upper American
Will	DAle	497	Plan Formulation
Willhide	Mary	2050	No Dam; Cost; Seismicity; Recreation - Upper American; 100-Year (FEMA) Levee/Storage
Williams	Jayne	364	No Dam; Cost; Plan Formulation
Williams	A.	446	No Dam; Economics; Wildlife/Vegetation - Upper American
Williams	Donna	621	Seismicity; No Dam; Cost
Williams	Sharon	1059	No Dam
Williams	Donna	1108	Seismicity; Cost
Williams	Jeff	1771	Recreation - Upper American; Wildlife/Vegetation - Upper American; NRA; 100-Year (FEMA) Levee/Storage
Williams, PhD.P.E.	Phillip	2178	Hydrology; Level of Protection
Williams, PhD.P.E.	Phillip	2179	Hydrology; Cost
Williams, PhD.P.E.	Phillip	2180	Hydrology; Plan Formulation

Last name	First name	Contr Numbe	Subjects
Wills	Jessica	990	No Dam; Seismicity; Water Supply Needs
Wilsen	Matthew L.	11	No dam
Wilson	Jennine	197	Cost; Seismicity
Wilson	Ann	628	Multi-purpose dam
Wilson	Jennifer	723	Plan Formulation; NRA
Wilson	Ron	765	Common Form Comment
Wilson	Julie	899	Common Form Comment
Wilson	Michael	1242	No Dam; 100-Year (FEMA) Levee/Storage
Wilson	Richard	1585	Common Form Comment
Winje	Paul	777	Recreation - Upper American; Wildlife/Vegetation - Upper American; Plan Formulation
Winkler	N.A.	1304	Multi-purpose dam
Winn	Thomas	143	400-Year Alternative
Winn	James	545	No Dam
Winter	C.	939	Plan Formulation; Recreation - Upper American
Winter	Thomas	1208	Recreation - Upper American; Cultural Resources
Winter	Thomas	1209	Cultural Resources; Plan Formulation; Sloughing and Sedimentation; Cost
Winter	Thomas	1210	Cultural Resources; NRA
Winternitz Jr,MD	William	211	Common Form Comment
Wisowaty	Suzanne	136	Multi-purpose dam; Water Supply Needs
Wolf	Kevin	1111	Plan Formulation; Cost; Wildlife/Vegetation - Upper American
Wolf	Kevin	1112	Natomas Growth Issue; Internal Drainage
Wolff	Anne	935	400-Year Alternative: Upper Canyon Growth Issue

Last name	First name	Contr Numbe	Subjects
Wolff	David	1419	Common Form Comment; Outlet Works (Gates), Aggregate Extraction
Wollen	Otis	2121	Aggregate Extraction; Recreation - Upper American; Water Supply Needs; Project Purpose
Wollen	Otis	2122	Upper Canyon Growth Issue; Plan Formulation
Wong	Daphne	905	No Dam; Recreation - Upper American
Wood	Robert/Deanne	396	Common Form Comment
Wood	Robert	1560	Multi-purpose dam
Woodall	Monica	1470	Common Form Comment
Woodall	Drew	1680	Common Form Comment
Woodard	William	1263	No Dam
Woodworth	Christina	201	No Dam; Recreation - Upper American
Woolley	Persia	1552	NRA; Natomas Growth Issue; No Dam
Wright	Melinda	1467	Plan Formulation; NRA; Wildlife/Vegetation - Upper American; Fisheries - Lower American
Wyatt	Brian	250	No Dam; Seismicity; Legal Compliance; NRA
Wyatt	Randy/Kim	1685	No Dam; Plan Formulation
Xavier	Marjorie	2016	Seismicity; Recreation - Upper American; Cost
Xiao	J.	883	NRA; No Dam
Yankauskes	Virginia	130	NRA; No Dam
Yannetta	Joseph	2177	Wildlife/Vegetation - Upper American; Cultural Resources; Seismicity; No Dam
Yates	Linda	440	Common Form Comment
Yeakel	Timothy	865	Common Form Comment
Yett	Jane	2268	No Dam
Yonkow	Nikolina	1716	Common Form Comment

Last name	First name	Contr Numbe	Subjects
York	Kathleen	543	No Dam; Plan Formulation
York	John	1374	Wildlife/Vegetation - Upper American; 100-Year (FEMA) Levee/Storage
Young	Leslee	581	Economics
Young	Dave	1725	Multi-purpose dam
Zacharia	Jennifer	999	Recreation - Upper American; 100-Year (FEMA) Levee
Zainasheff	Liz	1765	No Dam; Inundation Frequency
Zaslaw	Susan	1515	Recreation - Upper American; Wildlife/Vegetation - Upper American
Zeien	Becky	994	No Dam; Wildlife/Vegetation - Upper American
Zeien	Alice	1082	Wildlife/Vegetation - Upper American; Water Quality; Plan Formulation
Zellerbach	Jennifer	1428	No Dam; Recreation - Upper American
Ziegler	Brad	760	No Dam; Endangered Species; NRA
Zuckerman	David	75	No Dam; Plan Formulation; NRA
Zupp	Pamela	602	No Dam

Organization	Last name
A. Teichert and Son	Johnson
Air Pollution Control	Rogen
America Outdoors	Rangel
American Association of Retired Persons	McIntyre
American River Coalition	Casey
American River Coalition	Cooley
American River Flood Control District	Smith
Assemblyman	Knowles
Association of Water Agencies	Catino
Auburn Dam Council	Moore
Auburn Recreation Area Task Force	Proe
Bay Area Action	Peterson
Biosystems Analysis Inc.	Fay
Building Industry Association of Superior Calif.	Howse
Building Industry Association of Superior Calif.	Schmidt
California Farm Bureau	DuBois
California Native Plant Society	Clark
Calif. Native Plant Society - Sac Valley Chapter	Horenstein
Calif. Native Plant Society - SLO Chapter	Chipping
California Trout	Studman
Central Valley Flood Control Association	Basye
Central Valley Flood Control Association	Countryman
Central Valley Flood Control Association	Hardesty
City Clerk - City of Berkeley	McKechnie
City of Sacramento - Department of Public Works	McCollam



Organization	Last name
County of San Joaquin	Shepherd
Defenders of Wildlife	Spotts
Department of Fish and Game	Bontadelli
Department of Parks and Recreation	Rayburn
Department of Health and Human Services	Holt
ECOS	Lee
El Dorado County Association of Realtors, Inc.	Pearson
El Dorado County Board of Supervisors	Sweeney
El Dorado County Chamber of Commerce	Webb
El Dorado County Planning Division	Hust
El Dorado County Water Agency	Reeb
El Dorado Taxpayers Association	Shifflet
Eleventh Coast Guard District	Commander
Environmental Defense Fund	Krautkraemer
Environmental Protection Agency (EPA)	McGovern
Friends of the River	Evans
Friends of the River	Stork
Friends of the River	Velling
Friends of the River - Rafting Chapter	Bade
Hancock, Rothert & Bunshoft	Perkins
Keep the Sespe Wild	Coyne
Keewaydin Group	Kitchak
Labor and Building Alliance	Lambert
Mayor - City of Rocklin	Mitchell
Mayor - City of Lathrop	Gatto

Organization	Last name
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Mayor - City of Milpitas	McHugh
Mountain Lion Foundation	Palmer
N.O.W., LTD.	Olson
National Wildlife Federation	Campbell
Natomas Community Association	Hudson
Natomas Community Association	Wardrip
North Highlands Chamber of Commerce	Sloan
Phillip Williams and Associates, Inc.	Williams
Placer Conservation Force	Walters
Placer County Board of Supervisors - Dist. 1	Ozenick
Placer County Board of Supervisors	Hogg
Placer County Water Agency	Horton
Placer County Water Agency - Director, Dist. 5	Wollen
Planning and Conservation League (PCL)	Jennings
Protect American River Canyons	Drake
Rancho Cordova Chamber of Commerce	Hunter
Reclamation District No. 1001	White
Representative for Congressman Doolittle	Gloria
Representative for Assemblyman Knowles	Staats
Representing Congressman Doolittle	Hastings
River City Whitewater Club	Patrignari
Roseville Historical Society	Moore
Sac-Sierra Building and Construction Trades Council	Meehan
Sac. Metro. Water Authority	McPhail
Sacramento Area Firefighters Local 522	Mayberry

----- Organization -----	Last name
Sacramento Association of Realtors	Colombo
Sacramento Association of Realtors	Lyon
Sacramento Builders Exchange	Uhler
Sacramento Builders Trade	Meehan
Sacramento County Deputy Sheriff's Association	Phillips
Sacramento Metropolitan Chamber of Commerce	Margetts
Sacramento Metropolitan Chamber of Commerce	Colbert
Sacramento Metropolitan Water Authority	Schwartz
Sacramento Police Officers Association	Jorgensen
Sacramento River Preservation Trust	Merz
Sacramento Valley Marine Association	Kemper
Sacramento Water Intelligently Managed (SWIM)	Franzoia
Santa Cruz County Board of Supervisors, 3rd Dist.	Patton
Save Our Soil (SOS)	Libby
Save the American River Association	Cirill
Sierra Club - Mother Lode Chapter	Washburn
Sierra Club - San Francisco Bay Chapter	Donahue
Sierra Club Legal Defense Fund	Dreher
South Bay Action Center	Press
State Historic Preservation Office	Gualtieri
State Lands Commission	Sanders
State Net	McKeeman
State Water Resources Control Board	Johnson
Streaminders Chapter, Izaak Walton League of America	Murphy
Supervisor - El Dorado County	Dorr

Organization	Last name
Supervisor - Placer County	Fluty
Supervisor - San Joaquin County	Barber
Sutter County Planning Division	Capaul
Teichert Company	Johnson
U.S. Department of Commerce	Cottingham
U.S. Department of Interior	Port
U.S. Fish and Wildlife Service	White
U.S. Dept. of Commerce - National Marine Fisheries	Fullerton
West Contra Costa Conservation League	Siri
Western States Endurance Run	Rossmann
White Water Connection	Plimpton
Yolo Audubon Society	Smart
Yolo County Board of Supervisors - consultant	Borcalli

Comment letters from most State and Federal agencies can be found in Appendix A, Pertinent Correspondence.

## **ALTERNATIVES**

### **100-Year (FEMA) Levee Alternative**

- 490 Levees are cheaper to build for flood control. They can be vegetated to support native habitat.
- 88 Perhaps levees could be constructed.
- 17 The levees along the American can be strengthened and the American River Parkway can be expanded.
- 999 A better alternative would be to properly repair the levee system that should be controlling flooding in the Sacramento area.
- 969 I think the money would be better spent on repairing our levee system.
- 1077 Fix the existing levee system instead of your dam.
- 1418 We could strengthen our levees and give any money left over to the homeless.
- 1908 Quit addressing the issue of a dam and get on with levee repairs before we have a flood.
- 1961 Levee and channel improvement methods that avoid damage to the natural character of the river and Parkway.
- 170 Determining the necessary projects to insure the stability of our levees for the next 100 years would be a wiser way of spending our money.
- 600 Higher levees won't solve the problem. Obstructions within the existing levees are the problem. They won't allow flood flows to pass.
- 1371 I think levees are the answer. They will protect Sacramento and keep the river as original as it came.
- 185 The same flood control results could likely be achieved by improving levees downstream and adding new ones.

**RESPONSE:** The Selected Plan includes levee improvements in the Natomas area. Some levee improvements have already been initiated along the Sacramento River.

1983 If the Corps were truly interested in safety, levee setback alternatives would have been given much greater credence.

**RESPONSE:** Setting back the levees along the lower American River was determined to be infeasible due to the cost of acquiring the necessary land and the potential opposition to such acquisition. Please refer to Appendix B for additional detail.

1983 Even though Yolo Bypass flows were within 5 feet of overtopping their levees, there is enough remaining capacity to accommodate Sacramento River flows that could be anticipated during the 400-year flood.

**RESPONSE:** Comment noted.

1881 We oppose any tinkering with the levee system.

**RESPONSE:** Modifications are necessary to improve and ensure the structural integrity of the existing levee system along the Sacramento River. Some of the alternatives evaluated for the American River Watershed Investigation included levee work along the American River; however, the Selected Plan does not include this work. The Selected Plan does include levee work in the Natomas area.

486 My own preference would be to have several small dams in conjunction with levee improvements.

**RESPONSE:** This alternative is discussed in Chapter IV of the Main Report, and in the Plan Formulation Appendix.

2184 The Corps cites adverse environmental effects associated with the upgrading of the levees as a basis for rejection of this option. However, they do not consider new approaches to channel designs that are more environmentally sensitive.

**RESPONSE:** Comment noted.

2144 Improving existing levees and channels on the American River to increase the objective flow in excess of 115,000 cfs is not a desirable or safe alternative.

RESPONSE: Comment noted.

2184 The Corps' analysis of this option has a benefit/cost ratio of 3.8 to 1 with a total first cost of only \$237 million. This even understates the benefits if the proper assumptions regarding Folsom operation, upstream reservoirs, flood risk computation, and other factors are considered.

RESPONSE: Comment noted.

### 100-Year (FEMA) Levee/Storage Alternative

50	69	368	65	128	1626	276
1007	1000	69	453	5	1628	1775
1462	1325	1062	1666	1545	1546	1796
1447	1448	1061	1702	1453	2031	1923
1770	1744	1909	1747			

Common Comment #12: There are other reasonable flood control alternatives including reoperation of Folsom, lowering the Folsom spillway, and levee improvements.

- 4 A more reasonable alternative would include making repairs to the levee system along the lower American River and making adjustments to the Folsom Dam spillway and mission.
- 241 This alternative would lead to the same economic development as the dam but without the budget-busting nature and the environmental threats.
- 36 Sacramento can meet national flood control standards using the 150-year alternative of levee repairs along the lower American, reoperation of Folsom, lowering the spillway at Folsom, and utilizing upstream storage currently in place.
- 47 I support increasing flood storage at Folsom Dam improving the spillway, setback levees and controlling development in the floodplain.
- 102 Please consider alternative measures such as the reoperation of Folsom and levee improvements.
- 954 Have you thoroughly considered this alternative?
- 83 Return to Folsom and upstream reservoirs to operate, lower Folsom spillway and improve levees.
- 1961 Immediate action so that the 100-year level of protection can be achieved by improved levees on the Sacramento River, around the Natomas area and reoperation of Folsom.
- 1961 The early adoption of nondam flood control measures including lowering of Folsom Dam spillway, increasing lower American River flows and crediting existing upstream storage.
- 366 No new development in floodplain; acquire Natomas wetland acreage to protect endangered species.
- 2151 Increasing flood storage by 200,000 acre-feet to 600,000 acre-feet at the existing Folsom Dam combined with levee



modifications and associated downstream measures would protect the 100-year floodplain at a low cost.

1898 The community should look at accepting the riprap on the levees and the structures in their own communities instead of building them up here.

RESPONSE: The State and SAFCA are committed to achieving a high level of flood protection (i.e., 200 years or greater) for the people and property occupying the American River floodplain. As discussed in Chapter IV of the Main Report and in the Plan Formulation Appendix, the only way of achieving this objective is through the construction of an additional upstream storage facility. Based on considerations of economic efficiency, environmental impact, and public health and safety, the Corps has accepted the joint recommendation of the State and SAFCA and has selected the 200-year alternative as the plan recommended to Congress for authorization.

2151 Increasing the operating efficiency of Folsom Dam through modifying the existing spillway combined with greater flood storage space could control release significantly. This measure combined with downstream levee modifications would provide protection to the 100-year floodplain.

RESPONSE: Comment noted.

### 100-Year (FEMA) Storage Alternative

- 45 Only the 100-Year FEMA Storage alternative makes sense. It costs \$673,000,000 less than the 400-Year dam, not counting interest. It has a higher b/c ratio. It destroys the least amount of wildlife habitat, requires the least mitigation, and should be your preferred alternative.
- 977 I'm not against flood control. You could increase flood storage in Folsom Dam and other existing upstream reservoirs.

**RESPONSE:** The State and SAFCA are committed to achieving a high level of flood protection (i.e., 200 years or greater) for the people and property occupying the American River floodplain. As discussed in Chapter IV of the Main Report and in the Plan Formulation Appendix, the only way of achieving this objective is through the construction of an additional upstream storage facility. Based on considerations of economic efficiency, environmental impact, and public health and safety, the Corps has accepted the joint recommendation of the State and SAFCA and has selected the 200-year alternative as the plan recommended to Congress for authorization.

## **150-Year Alternative**

555 Repair and upgrade existing levees to standards necessary for 150-year protection.

27 I am an advocate of repairing levees along the lower American, reoperating Folsom Reservoir, lowering Folsom Dam spillway as outlined in the 150-year alternative. I also would like to see the use of additional upstream storage facilities already in place.

2105 Page DEIS 15-30, paragraph 11 - Indirect impacts due to the 150-year alternative could include an increased risk of a reduced water supply to water district pumping water from a lower Folsom Reservoir.

**RESPONSE:** The 150-year alternative is discussed in detail in Chapter V of the Main Report and in the Plan Formulation Appendix. Increased pumping costs for local water agencies are identified as an impact of this alternative in Table V-12. Additional upstream storage is discussed in Chapter II of the Main Report.

1965 150-year cannot be expected to garner public support given the Corps' characterization of supposed negative environmental impacts (based on flawed assumptions, operational models, and selected facility construction plans) of levee and reoperation alternative.

**RESPONSE:** Comment noted.

32 We support the 150-year alternative that makes adaptations in Folsom Reservoir rather than a dry dam at Auburn.

2105 Pages 4, 5, 6 and DEIS 1-7 - The discussion of the nondam alternatives does not address the impact on legally established flow requirements in the lower American River, the Sacramento River, and the Delta, and temperature requirements in the Sacramento River.

**RESPONSE:** The impacts associated with the 150-year alternative are displayed in Table V-12 of the Main Report. It is assumed that over the life of the project an increase in the space allocated to flood control at Folsom, combined with an increase in the demand for water, would make it more difficult to meet established flow requirements.

2184 The report understates the benefits and overstates the environmental consequences of repair and upgrading the levees. It makes no mention of why adequately constructed and maintained levees could not safely convey sustained flows at least equal to their original design capacity of 152,000 cfs. Historically, levees have protected Sacramento from significant flood events.

**RESPONSE:** Under the 100-year (FEMA) levee alternative, the lower American River levees would be upgraded to convey sustained flows of 145,000 cfs. Under the 150-year alternative, the levees would be designed to convey flows of 180,000 cfs.

2104 Page 8-66, paragraph 6 - If indirect impacts for the 150-year alternative include the potential impacts to the CVP, this paragraph should be revised to indicate that the 100-year alternative indirect impacts would be similar to the 150-year and not the TSP.

**RESPONSE:** Comment noted.

2181 The 150-year alternative provides the greatest level of protection without construction of a dam. This is a more desirable alternative than the 400-year flood protection dam. Such a dam would be "hydrologically inefficient".

**RESPONSE:** A main project feature of the 150-year alternative is increasing objective flood control releases from Folsom Lake to 180,000 cfs from the current 115,000 cfs. Both the Corps and the State of California Reclamation Board have evaluated this increase in objective releases and determined that it would not be prudent to increase objective releases above 115,000 cfs. This determination was made after an evaluation of (1) the potential for scour of the levee system from the high channel velocities caused by a 180,000 cfs release, (2) the vulnerability of adjacent urban development to rapid and deep flood due to a breach in the levee system, and (3) the uncertainty of protecting the channel from high-velocity scour which has been introduced by limitations on channel maintenance.

These concerns limit the reliability of all alternatives which rely on increasing the flood releases to the lower American River.

## **200-Year Alternative**

151 If adequate measures are taken to protect the free river and its habitat, then by all means build the minimum dam that is needed.

2159 We support development of a 200-year dam which will provide adequate flood protection while minimizing environmental damage.

**RESPONSE:** The environmental mitigation measures to be implemented in connection with the project are discussed in Chapter 22, Mitigation and Environmental Monitoring, of the EIS/EIR.

1822 We support an expandable 200-year flood control dam at Auburn.

1877 We would support an expandable 200-year dam at Auburn.

32 If a dam has to be built, we prefer the smaller dam offering 200-year protection.

1763 I favor a 200-year dam that would be used only to hold back floodwaters.

2144 Due to the lack of firm commitment from water and power users and controversial environmental concerns, it may be necessary to forego the NED plan at this time and focus on a compromise 200-year alternative in order to expedite project construction and to provide needed flood protection.

2025 I would accept as a possible compromise the 200-year dam.

2159 We support development of a 200-year dam which will provide adequate flood protection while minimizing environmental damage.

**RESPONSE:** The Selected Plan has been changed to the 200-year alternative. This alternative includes construction of a dam which will provide a 200-year level of flood protection. The dam will be constructed so that future expansion or conversion to a multipurpose facility is neither precluded nor advanced.

### **400-Year Alternative**

1178	1181	1094	99	142	143	720
727	501	449	1192	1193	1113	1110
1115	1195	1375	1184	1387	1383	1405
1373	1400	1196	1380	1907	1871	1920
935						

Common Comment #14: I fully support the Corps' tentatively selected plan.

**RESPONSE: The Selected Plan has been changed to the 200-year alternative.**

1881 We support the plan so long as the word "expandability" is included in the report.

1180 It is imperative that this project be expandable and be authorized at the earliest possible moment.

419 I support your tentatively selected plan. The fact that it is expandable and has closeable gates increases my support.

**RESPONSE: The Selected Plan will be constructed so that future expansion or conversion to a multipurpose facility is neither precluded nor advanced.**

1079 How long would your proposed dam last? The report is unclear if, during maintenance periods, all water would cease to flow.

**RESPONSE: For planning purposes, the useful life of the project was assumed to be 100 years. The actual life of the dam would likely be considerably longer. At no time during maintenance of the dam would the entire flow of the North Fork American River be obstructed.**

512 A great number of the impacts listed in your impact summary do not appear to be in the American River watershed's best interest.

**RESPONSE: Comment noted.**

2000 (In regards to Chapter 24) Propositions concerning dam failure should be strengthened by direct citation to authority, i.e., theoretical studies by Corps of other agencies. Needs explanation as to why this particular damsite selected over other candidate sites.

**RESPONSE:** Damsite selection is discussed in Chapter VIII of the Main Report and in Appendix J.

1951 When uncertain, authors admit it, but nothing done about it. Few calculations or estimates made by author.

**RESPONSE:** Comment noted.

1998 (In regards to Chapter 17) Discussion of flood control-only dam applies equally to the 400-year protection of the tentatively selected plan and to the 200-year alternative.

**RESPONSE:** Comment noted.

1984 Project should be more clearly defined than one whose purpose is to provide 400-year protection. As local sponsors will not participate in any project providing less than 200-year protection for public safety reasons, this parameter should be a component of the revised project description.

**RESPONSE:** The 200-year alternative is now the Selected Plan based on the joint recommendation of the State and SAFCA.

1984 Project definition should not include San Juan and Del Paso pumping stations. Costs were included in the Feasibility Report for purpose of defining local agencies' contribution to overall flood protection costs. Environmental impacts of two pumping stations have been addressed in series of EIR's.

**RESPONSE:** These pumping stations have been deleted from the project.

2082 (Expected project life, expected hydropower life) Would raising the dam height prolong project life - specifically raising it 100 feet. Is dismantling cost included in b-c ratio?

**RESPONSE: The answer is no to both questions.**



## ADDITIONAL UPSTREAM STORAGE

- 4 The use of Folsom and other upstream reservoirs as flood control facilities is not completely inconsistent with irrigation and power generation.
- 124 I would like to see Folsom and other upstream reservoirs operated in a more sensible fashion for better flood control.
- 188 Much can be accomplished, at far less cost, by Folsom and upstream reservoir reoperation and spillway lowering.
- 489 Alternatives exist including the use of existing upstream reservoirs for flood control.
- 1878 I am in favor of additional upstream storage.
- 634 You could explore nondam alternatives such as more frequent modulation of Folsom and the use of upstream reservoirs.
- 1749 Existing dams could easily be made capable of taking more of a role in flood control.
- 2110 Page DEIS 3-11, paragraph 5 - Further study of the upstream storage option is warranted. Making better use of existing facilities is an environmentally prudent option.
- 17 Why not reoperate the upstream reservoirs and lower the spillway on the dam at Folsom?
- 2110 Page DEIS 3-11, paragraph 6 - Further explanation is needed here before dismissing this option. Standard projections assume rainfall to be equally distributed across the drainage basin. A reduction of inflow by 14 percent would reduce the potential inflow by 14 percent in a hypothetical flood. This would represent an important segment of flood protection.
- 2065 We recognize the statement on page 3-12 of the EIS that, in principle, levees are less safe than dams as retention facilities. However, it may be that the consequences of dam failure would make the conveyance of floodwaters out of the system instead of detaining them more than desirable. Improbable events do occur.
- 2183 The Corps' analysis of the probable maximum flood shows that upstream reservoirs have significant surcharge storage available at the time of flood peaks.
- 1365 You can serve the people better if you instead build or expand smaller dams further up the American.

- 2183 The flood risk analysis appears based on the unrealistic scenario in which upstream reservoirs are simultaneously full coincident with a major flood event.
- 2184 The Corps attributes somewhat less than 50,000 acre-feet of storage for a 100-year event and none for rarer floods. Dr. Williams' analysis shows available storage to be at least 200,000 acre-feet with significant volumes stored during the initial four days of a flood. This would have a significant effect on determining the flood risk to Sacramento and designing appropriate strategies to address that risk.
- 2259 The treatment of reservoirs not designed for flood control, such as those above Folsom, are a matter of engineering judgment and, if necessary, negotiations with FEMA. However, the Corps' assumption that they do not exist (i.e., full at time of event) is completely contrary to standard engineering practice in this field. The Corps must justify its treatment of upstream storage in its calculation of floodflows in the American River.
- 18 Further study of the option presented on page 3-11, paragraph 5, Upstream Storage, is warranted. Retrofitting to accomplish flood control objectives along with increasing storage capacity could benefit water supply, hydropower and flood control purposes. Multipurpose benefits would likely outweigh costs. Making better use of existing facilities is an environmentally prudent option.

**RESPONSE:** Use of the upstream reservoirs as flood control measures is discussed in Chapter IV, Plan Formulation, of the Main Report and in Appendix B, Plan Formulation. Assumptions regarding storage available for our flood analyses are described in the Hydrology and Reservoir Regulation Appendices, K and L respectively. The influence of five existing upstream hydropower and water supply storage reservoirs was considered in plan formulation. Upstream storage was analyzed using the 21 years of record available since construction of these dams to determine how much storage actually existed before each reservoir filled. Our analysis of the potential reliable available space in these reservoirs creditable to effective flood control indicated approximately 50,000 acre-feet would be available prior to filling. The analysis considered that: (a) these reservoirs were constructed and are operated for hydropower generation and water supply (i.e., they do not include dedicated space nor outlet works designed for flood control releases); (2) they control only 14 percent of the Middle Fork drainage area; (3) the reservoirs are disproportionately concentrated in the upstream area of Middle Fork American River; and (4) they would be effective only during the early part of the runoff period because once filled they are ineffective in reducing the flood volume and peak flow.

It is not feasible to utilize available space in the five major existing reservoirs upstream from Folsom Dam for both physical and economic reasons. From the physical standpoint, these reservoirs control only a small portion of the basin because of their remote location. From an economic standpoint, the cost to acquire the space, and to modify the outlet works for flood control would be in excess of the benefits gained.

2183 The report also concludes that allowance for "dead pool space" for sediment would not be required for its proposed detention dam because "existing upstream reservoirs would catch most of the suspended sediment". This is in direct conflict with the earlier statement that these reservoirs would have no appreciable effect on floodflows because they capture such a small percentage of total basin runoff.

RESPONSE: Expected sedimentation is discussed in Chapter VI, Auburn Dam, of Appendix K, Hydrology. The 100-year sediment deposition of 12,100 acre-feet (449 square miles) assumes the upstream dams have a trap efficiency of 100 percent. The 100-year sediment deposition of 26,200 acre-feet (971 square miles) assumes the upstream dams have a trap efficiency of zero percent. The trap efficiency is based on detention time and not reservoir capacity. The sediment deposition of 4 percent of the reservoir capacity is based on the sediment deposition value of 26,200 acre-feet and an Auburn Dam capacity of 600,000 acre-feet (200-year level of protection). Should these deposits begin to impact the flood control aspects of the Dam, they will be removed. The cost associated with the small amount of periodic sediment removal is included in the annual operation and maintenance cost.

19 Further explanation is needed for the option presented on page 3-11, paragraph 6, Upstream Storage, before dismissing this option. Standard probable flood projections generally assume rainfall is equally distributed across the drainage basin. Thus, total inflow reduction of 14 percent would reduce the potential inflow by 14 percent in a hypothetical flood. This would represent an important segment of flood protection.

RESPONSE: The standard project storm (SPS) is not equally distributed over the basin. The last SPS developed for the American River Basin was in the 1960s. The peak of the runoff hydrograph comes from the drainage area below the main upstream reservoirs. There is not a direct correlation between drainage area percentage and the runoff percentage from the Basin. Please refer to Appendix K, Hydrology, for additional detail.

## AGGREGATE EXTRACTION

- 1854 Appendix G, page G-5 - The revised DEIS should state whether excavations will result in depressions in the river and evaluate impacts if they remain.
- 1854 Appendix G, page G-14 - To comply with 404(b)(1) guidelines, the availability of upland gravel sites should be addressed.
- 1650 Excavation will endanger the natural habitat.
- 1922 The Middle Fork of the American River would be especially hard hit. Six million cubic yards of gravel would be mined from the riverbed.
- 36 The plan would devastate the canyon during construction by mining the aggregate from the riverbed.
- 311 The project would destroy the North and Middle Forks of the American River by mining the riverbed.
- 1904 The report says natural resources upstream of the dam would remain productive over the long term. I don't believe that because trails would be destroyed.
- 1910 Construction is destructive because of strip mining all the gravel out of the Middle Fork.
- 678 A small dam would eliminate the need to dig holes in the river bottom for aggregate.
- 1588 The river would never recover from you plan to remove 6.5 million cubic yards of sand and gravel from the Middle Fork.
- 1880 With the gravel extraction, you will ruining many trails and river crossings.
- 1158 Excavation of sand and gravel is a rape of the natural beauty of the Middle Fork.
- 1095 I think the borrow areas will be ruined and right now it is a beautiful recreation site that I and my family use and enjoy.
- 159 It would have adverse environmental effects from the excavation of sand and gravel to build the dam.
- 1916 Removal of gravel bars from the riverbed to make cement for the dam is an example of such a negative and unmitigated act.
- 1532 Removing 6.5 million cubic yards of sand and gravel will certainly destroy the area from where it is taken.

- 1889 The most disruptive construction activity would be the mining that would require a million cubic yards of material.
- 407 The removal of 6.5 million cubic yards of sand and gravel from the Middle Fork would degrade the land permanently.
- 1100 The scouring of the Middle Fork will be an unsightly monstrosity. The larger the dam, the larger the sterile area with little recreational value and no aesthetic value.
- 1903 There is not enough information given on the mining of gravel bars.
- 1523 Using the borrow method will destroy the environment along the Middle and North Forks of the river.
- 1894 You failed to mention in your public meeting that the riverbed will have to be scraped to bedrock and the resulting slope failures would destroy trails.
- 891 Construction would require 6,000,000 cubic yards of material harvested from the area. Consider the impact of that action on the canyons.
- 1841 Lack of hydric soils within the stream isn't atypical for river systems and doesn't necessarily remove the area from 404 jurisdiction. It may qualify as a problem wetland or be regulated as waters of the U. S. All project activities should be evaluated for impacts.
- 1922 Mining of the Middle Fork would completely destroy that portion of the river.
- 1824 Page 4-14 states that aggregate information will be included in the FEIS. Will this information be circulated like the DEIS? If not, the public and agencies are illegally excluded from the plan formulation process. Will alternative sites be developed per CEQA?
- 1824 Page 16-13 states that although impacts would be severe and of long duration, they would not be permanent. It is impossible to assess the permanence of unspecified operations and this unsubstantiated conclusive statement is in violation of CEQA.
- 1545 The aggregate required should not come from the Middle and North Forks. Instead you should consider removing it from Lake Clementine Dam.
- 1104 The borrow area is very pristine and filled with wildlife, plant life, and tremendous fishing habitat. I think the area will be completely destroyed and putting plant life in there

and maintaining it for 20 years wouldn't even come close to replacing what is now in the canyon.

- 1117 An engineering mind assumes that mining 6 million cubic yards from the Middle Fork may be a small thing, but I think that the issue is very important.
- 1854 It is impossible to tell the amount or location of the excavation in potentially sensitive environmental areas. It is impossible to determine the impacts from processing or the conveyor system since they are described.
- 1769 It is incomprehensible to me to use 6.5 million cubic yards of sand and gravel from the canyon.
- 1831 Neither the details nor potential impacts of aggregate extraction have been analyzed nor disclosed and alternative sources have not been identified. This information should be in the revised draft EIS.
- 206 The excavation of sand and gravel would destroy seven miles of the Middle Fork.
- 2081 How will extraction transport system affect river recreation during dredging? What are the effects to fish, wildlife, and aesthetics? What are the hours and days of operation? What is the capacity, height, and width of the system?
- 2081 How will aggregate be transported to processing site and then to the dam? Where will the transport route be located? Upon dam completion, will the transport system be removed? Is the dismantling cost figured into the project cost? How much will it cost?
- 2074 Sources other than the Middle Fork should be explored for gravel extraction that would cause less aesthetic and environmental degradation.
- 2128 The proposed aggregate mining with transit to the damsite, staging areas, etc. are proposed without detail.
- 1968 What impacts will mining and transport have on water quality, geology, soils, fish, vegetation, wildlife, air quality, drainage, recreation, land use, endangered species, cultural resources, traffic, noise, visual resources, cumulative impacts, and socioeconomics?
- 1972 The DEIS concludes that mining 6.5 million cubic yards of gravel from some of the most heavily used areas of the Middle Fork will cause the bed to drop some 30 to 40 feet below the present ground elevation.

- 1174 The Middle Fork will be impacted due to the so-called borrow sites being mined. These sites are currently recreation, cultural, and historic sites.
- 1419 There should not be any sand or gravel mining to build any structure in the canyon.
- 1933 Where will a rail/conveyor system be constructed to transport the aggregate to the damsite? How much will be transported? What percentage of the total aggregate needed will use such a system? How much can it transport? What kind of impacts will it have on the environment? If you are seriously proposing such a system as mitigation, then substantial additional information needs to be included.
- 1872 A dry dam would create huge pits up to 40 feet deep from sand and gravel extraction.
- 2001 CEQA and the Surface Mining and Reclamation Act requires quantification of impacts related to surface mining operations in Natomas, Yolo County, and the upper American River canyon.
- 2081 Describe equipment, size, and number used in the extraction process. How will extraction affect recreation, fish, and wildlife? Will extraction start upstream and work downstream? Will the whole eight-mile stretch be stripped or just sections?
- 1967 Effects of aggregate mining, its transport and mitigation for mining nearly 6.5 million cubic yards of material are not described in the draft EIS, leaving a very significant "detail" for the final document.
- 1967 The DEIR/DEIS states no direct land use impacts would result from acquiring and transporting the aggregate to construct the TSP. Since there is no information contained in the document, this statement is unsubstantiated.
- 1657 Information required to assess impacts: length of conveyor system; location of system; whether system is metal or enclosed. If not, then there needs to be discussion of noise. Will noise standards be violated? How will neighbors be impacted? Can roads accommodate aggregate trucks? Will processing materials be hazardous or toxic as defined by federal or State lists?
- 1962 Aggregate must not be mined from the canyons.
- 1930 There is no information on the extraction method, transport of materials, or the impacts the operation will have on resources. Which bars will be mined? Will gold be extracted?

What about vehicle trips? Will Highway 49 be used for transport?

- 1930 Information regarding the extraction of gravel should be included. Once the additional information is included, the EIS should be recirculated and additional measures added.
- 2080 If this is a dry dam, why cannot sufficient aggregate be obtained from other sources? If sufficient aggregate is not available at the proposed excavation site, where will additional material be obtained? After mining, what form will scouring go? Will aggregate be used for proposed projects other than the dam?
- 2011 Impacts to vegetation caused by extraction, transport, and providing facilities to process the material, need to be addressed. This is a major omission within the document and this information should be available for public review and comment.
- 1656 It is impossible to tell the amount of location of the excavation in potentially sensitive environmental areas. It is impossible to determine the impacts from processing or the conveyor system since they are not described.
- 2112 Page DEIS 4-14, paragraph 2 - Further explanation is needed here. It is difficult to understand how 6 million cubic yards can be extracted from about 12 miles of riverbed without some impacts.
- 1945 The project description should include more detail about the aggregate removal.
- 2146 The report states that the mining will be the most disruptive construction-related activity (page 14-14). However, the DEIS fails to cover any specifics regarding this activity.
- 2005 Your report clearly underestimates the environmental impacts, especially those effects that mining will have on the Middle Fork canyon.
- 2000 Chapter 21 should include statistics concerning amount of aggregate to be mined, amount of cementing used, size of access roads to be built for mining and actual dam construction, amount of fuel required during dam construction, and mitigation or reclamation activities required at aggregate borrow sites. Chapter would also be enhanced with a discussion of irreversible commitment of resources.
- 1157 Dredging would be extremely destructive to the river.



- 2093 Gravel extraction would destroy every gravel bar for 15 miles of river. Anyone who has visited this river knows that the canyon walls are steep, and that the bars offer the only respite. They are home to numerous plants and animals, comprising a vibrant riparian community. The bars are also preferred places for recreation. Considering the amount of attention the DFS gives on negative effects of riprapping along the lower American, there is nothing about the gravel mining as a negative impact.
- 1932 Many impacts of the aggregate mining need to be considered in relation to water quality. What method will be used to pre-size rocks? Will it require crushing and piling next to the river? Where is the source of water for gravel washing and how much will be required? Will toxics be released by this washing? What about increased silt impacts downstream from the mining and washing site?
- 242 Other alternatives don't require the expense and damage from the extraction of 6.5 mm cubic yards of aggregate material from seven miles of the Middle Fork.
- 1825 Page 16-13 states that as vegetation is reestablished around these pools, they could become a visual asset.
- 982 The dredging required would destroy one of the few remaining areas of the river that is in its natural state.
- 2121 The level of destruction implied by aggregate mining the entire lower Middle Fork and confluence area is horrible and totally unacceptable.
- 2147 What are the options instead of taking the aggregate from the river bottom?
- 1968 What is the method proposed for extraction and processing the aggregate? What environmental impacts will result? Specifically, which bars are to be mined? Will gravel be inspected for gold? How will the gravel be transported? How many vehicle trips will be required over the construction period? Will any aggregate be used for the Highway 49 relocation?
- 2257 The analysis of the critical issue of aggregate extraction has been deferred, in apparent violation of NEPA and CEQA. Please provide specific correspondence to identify completed coordination and consultation with the California Department of Conservation and the State Lands Commission on this gravel extraction proposal.
- 2261 The environmental impacts of gravel mining needs to be addressed in the draft EIR/EIS. It is not possible to meet

CEQA requirements for mitigation if the impact is not even identified.

- 2266 The report declares that the gravel pits could actually become visual assets. That statement makes a great leap in objective analyses, especially since the river's visual qualities exist in spite of man, not because of him.
- 2266 What is the cost of replacing these borrow areas? Where will the material come from, and how will it be transported back to the Middle Fork? Processing and transportation of materials lacks adequate discussion.
- 2199 No information or analysis is provided about resulting changes in river morphology and hydrology or about the effects on river communities, spawning gravels, or other riverine resources. Other environmental impacts were not subjected to analysis or even identified.
- 1922 Mining of the Middle Fork would completely destroy that portion of the river.
- 2193 It is interesting to note that even with mining up to 6.75 million cubic yards of aggregate and the impacts of constructing a 500-foot dam, the Corps claims that the 200- and 400-year flood control dams have the least construction-related environmental impacts of the alternatives that involve any construction.
- 1975 National recreation features will be severely impacted by the aggregate extraction, including day-use at Mammoth, boating runs between Greenwood and Mammoth bar, and recreational trails.
- 2159 The report does not appear to adequately address the aggregate mining or the restoration of the sites after mining is completed.
- 2174 The Corps' plans to excavate more than 6.5 million cubic yards of sand and gravel from seven miles of riverbars would have obvious environmental consequences.
- 2062 We have been told by Reclamation Board staff that our concerns about the extensive gravel mining which the ARWI EIS discusses are impertinent since a different source of dam construction material has now been selected. The new source will be revealed in the final document. Construction impacts are too important to handle in such a sleight-of-hand manner. It denigrates the EIR process. How many other unrevealed aspects of the projects await our discovery?

2164 Have alkali potential reactivity tests been performed on the aggregate source? What about the presence of mercury or cyanide?

1830 One area of inadequacy is the evaluation of the environmental consequences of removing 6 million cubic yards of aggregate material from gravel bars in the Middle Fork of the American River.

RESPONSE: In response to the many comments received on using aggregate from the riverbars for construction of the dam, the existing analysis was augmented and additional alternatives developed. The final report recommends the Cool Quarry as the preferred source. The studies together with a discussion of the preferred aggregate source can be found in Appendix M. Impacts and mitigation from this operation can be found in various chapters of the EIS/EIR but particularly in Chapter 6 (Drainage and Water Quality), Chapter 7 (Fish and Wildlife), and Chapter 11 (Transportation).

## **AGRICULTURAL/PRIME AND UNIQUE FARMLANDS**

1995 Discussion of agricultural lands should be clarified to state that you are referring to the entire Natomas Basin and not just the Natomas area within the city. Table 11-1 on page 11-2 shows the Natomas area has 12,936 acres in rice while the bottom of page 11-2 declares that 14,017 acres of rice exists in Sutter County portion of the project area. This inconsistency needs resolution.

1995 I believe some zeros have been left off of Table 11-3 as it is unlikely that every alternative would affect only 5.14 acres of prime farmland. It also doesn't identify the impact of the no-action alternative on farmland. The no-action alternative has the greatest potential for adversely impacting agriculture. A major flood in Natomas would destroy all the crops and the agricultural infrastructure, such as roads, farm machinery, and buildings. It would also damage the pumping system for current drainage and the irrigation systems.

**RESPONSE:** The Agriculture/Prime and Unique Farmland Chapter of the EIS/EIR has been revised to clarify the extent of agricultural production in the Natomas Basin including the actual number of acres in rice production. The no-action alternative would allow crop damage due to flooding. Damage to soils would be minimal, allowing agricultural production to continue after the flood event. All flood control alternatives would likely result in development in Natomas, causing agricultural lands to go out of production.

1995 I dispute the categorization of farmland in the Natomas Basin as prime or unique. The land as a whole is not quality farmland. It is suitable only for rice, which would not be economic to farm without government subsidies. Farmland suitable for the description of prime or unique farmland can be found much farther north in the Sacramento Valley.

**RESPONSE:** The definition of prime and unique farmlands used in the EIS/EIR was developed by the Soil Conservation Service. The Soil Conservation Service is the expert agency for this resource. These definitions are based largely on chemical and physical characteristics of soil.

1995 Chapter 11 discusses impacts to Yolo County, one of the few times Yolo County is mentioned. If there are impacts to Yolo County, then it should be examined in all chapters of the EIR.

**RESPONSE:** These impacts refer specifically to those associated with the widening of Fremont Weir. The modification is no longer part of the Selected Plan. However, modifications to the Sacramento Weir and Yolo Bypass levees downstream of the Weir remain part of the 150-year alternative and two of the 100-year (FEMA) alternatives.

2251 The environmental impact analysis addressing the direct impacts to Natomas of the TSP fails to address whether the affected acres of land in agricultural production are under land conservation contracts and fails to address impacts to adjacent land uses.

**RESPONSE:** Concur. The Agriculture Chapter has been revised to reflect this comment.

2251 The analysis in Chapter 11 of the DEIS/EIR defers the discussion of direct environmental impacts of relocation of Highway 49 until "detailed route adoption studies are underway".

**RESPONSE:** Impacts associated with relocation of Highway 49 for flood control purposes are described in various sections of the EIS/EIR. A qualitative analysis of impacts associated with several potential alternative alignments which might be considered in possible future project adoption studies to be accomplished by the State of California has been included in the Cumulative Impact Chapter of the EIS/EIR in accordance with CEQA guidelines.

2251 The DEIS fails to conclude whether the removal of several thousand acres of agricultural land is a significant indirect impact and whether such an impact will be mitigated.

**RESPONSE:** The DEIS/EIR identifies the number of acres which will be developed; however, it is the Corps' contention that mitigation for indirect impacts is the responsibility of local government. A mitigation plan which assess the impacts of potential growth inducement and provides potential mitigation measures is currently being developed in conjunction with the Fish and Wildlife Service and the local sponsors.

2133 Impacts are discussed for agricultural acreages in Chapter 11, but types and extent of impacts are not identified. The general terms "affected" and "impact" are used.

2137 Discussion of mitigation measures for impacts to agricultural lands is inadequate. No mitigation measures are offered for acknowledged direct impacts. Specific measures with concrete recommendations should have been included.

**RESPONSE:** As explained in Chapter 9 of the EIS/EIR (Agriculture/Prime and Unique Farmland), impacts to agriculture in Natomas are likely to be of two types: Construction of the Natomas levee improvements called for under all of the ARWI alternatives will directly affect a 71-acre parcel of agricultural land south of Sacramento Metropolitan Airport. This parcel has been identified as the borrow site for the material needed to construct the improvements. Loss of this agricultural acreage would be a significant impact based on the significance criteria set forth in Chapter 9. This impact could be reduced to a less than significant level by implementing an appropriate reclamation effort, including removal and replacement of the top soil found at the site.

Growth in Natomas would affect agriculture by facilitating development which would in turn cause a permanent unavoidable loss of prime and unique farmlands. Under the significance criteria set forth in Chapter 9, this would also be a significant impact. It could be mitigated, but not to a less than significant level, by increasing the density of development in Natomas so as to preserve as much valuable agricultural land as possible.

2118 There are small agricultural ditches in the Sacramento Weir area and the Fremont Weir area that may be affected by the proposed construction.

**RESPONSE:** The Fremont Weir portion of the project has been eliminated from the Selected Plan. Direct impacts on agricultural uses resulting from construction activities in the Natomas area are discussed in Chapter 4, Land Use, and Chapter 9, Agriculture/Prime and Unique Farmlands.

2230 The Corps should have contacted the Soil Conservation Service and sought their comments during the development of the DEIR/DEIS.

**RESPONSE:** Comment noted.

2229 Page 11-6 of the DEIS asserts that responsibility to mitigate impacts due to the conversion of agricultural land falls entirely to the local government. However, under CEQA and NEPA, the federal government cannot delegate its mitigation

responsibilities. In light of the Farmland Preservation Act, the federal government has a responsibility to carry out appropriate mitigation.

**RESPONSE:** Impacts to agriculture would occur only if the local agencies with land use jurisdiction in Natomas permit urban development to occur on agricultural lands. Since the Corps has no effective way to control these land use decisions, Corps policy is that the land use agencies must take responsibility for the consequences of their decisions.

2230 Mitigation for the loss of agricultural lands cannot be adequately addressed on a project-by-project basis.

**RESPONSE:** Conversion of farmland is identified as a significant unavoidable impact in Chapter 9 of the EIR/EIS. The cumulative impact of converting farmland to urban uses in the Natomas area could be reduced, but not to a less than significant level, by planning for higher densities and establishing strong farmland preservation policies in local plans.

2118 Page 9-7, paragraph 5 - This paragraph is not entirely correct as written. Soil types affect the success or failure of agricultural crops. Much of the interior land in Natomas is underlain with clay-type soil. Rice and some grains are compatible crops for these soils. Row, truck, and berry crops favor well drained soils along the perimeter of Natomas. These crops do not grow well in the interior. There are site limitations on crop types.

**RESPONSE:** See revised Chapter 10 for discussion of soil types and farmland designations.

2229 Page 11-3 of the DEIS indicates that the estimates of project impacts on agriculture were based on mapping performed by the Department of Water Resources, 1984. Are there more recent maps on the impacted region showing agricultural patterns?

**RESPONSE:** Chapter 10 has been revised to include more recent information on cropping patterns and current agricultural land use.

## AIR QUALITY

1569 There will be air quality impacts associated with project construction.

1896 Describe more fully impacts to air quality from construction.

1852 Include estimated project air pollutant emissions for levee construction in the lower American River for the 100- and 150-year alternatives on page 7-14.

**RESPONSE:** Additional information has been added to Chapter 12 (Air Quality) to more fully discuss impacts resulting from construction activities in the Natomas area. Construction impacts which would result from either the 150-year alternative or the 100-year (FEMA) levee and 100-year (FEMA) levee/storage, spillway alternatives would be very similar to those which will occur in the Natomas area.

1847 The DEIS doesn't, but should, provide a substantive analysis of whether the projected direct and indirect impacts will interfere with attainment of NAAQS or contribute to standards violation in the Sacramento Valley. This analysis should address cumulative effects from development, population changes, transportation, increased erosion, ozone impacts, etc.

2212 How does the project "conform" to an approved State Implementation Plan? How does the Corps intend to make a finding that the proposed project conforms with a SIP approved by the ARB and EPA?

1847 The Corps should develop, with local agencies, a mitigation plan to ensure conformity with the Clean Air Act by developing and expanding the MOU in the DEIS. Yolo, Solano, Placer, and El Dorado Counties should be included.

1847 The DEIS lacks a conformity demonstration as required by Section 176(c) of the Clean Air Act.

**RESPONSE:** The Selected Plan will cause air quality impacts in three different jurisdictions: the south Sutter County portion of the Natomas Basin which is under the jurisdiction of the Sutter County Air Pollution Control District; the areas of the City and County of Sacramento which lie within the 100-year floodplain and may be the focus of levee construction activity as well as project-related growth; and the canyon area behind the proposed flood control dam which lies within the Placer County Air Pollution Control District. For different reasons, none of these areas has



an ARB or EPA approved State Implementation Plan (SIP). South Sutter County is not required to have one because it is an area which has experienced no violations of State or federal air quality standards during the last two years. Western Placer County does not yet have a SIP because it has only recently been declared a nonattainment area. The SIP applicable to the City and County of Sacramento has been declared inadequate by EPA and no new SIP has been approved by ARB. Under these circumstances, there is no basis on which to make a "conformity" finding.

Because project construction is occurring in nonattainment areas, Chapter 12 treats construction-related impacts on air quality as significant unavoidable impacts even though these impacts will be of a temporary short-term nature.

With respect to indirect impacts in the floodplain portion of the project area, the discussion in Chapter 12 makes three points. First, the project improvements will affect the location but not necessarily the magnitude of growth in the Sacramento metropolitan area. Thus, an incremental increase in emissions of the precursor compounds which create ozone is likely to occur with or without the project.

Second, even if indirect impacts are measured from an existing condition (1992) baseline, the growth facilitated by the project under currently adopted general plans is anticipated by the air quality attainment plan recently adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD). Adherence to this plan would create sufficient offsets in developed areas of Sacramento to permit planned growth to occur in undeveloped areas, including Natomas, without sacrificing the goal of reducing the inventory of regional emissions to levels which comply with federal and State standards.

Third, it is reasonably foreseeable that growth beyond the parameters of existing local plans will occur in Natomas. This would be the case if Sutter County and Sacramento County proceed with general plan modifications currently being discussed. However, because this growth would be outside the temporal and geographic scope of the SMAQMD attainment plan, it is unclear whether these general plan modifications would jeopardize the SMAQMD's attainment strategy.

1847 The revised DEIS must clearly demonstrate that the proposed action would not delay timely attainment of National Ambient Air Quality Standards (NAAQS) or contribute to their violation.

2136 The discussion of Air Quality impact mitigation on page 7-19 incorrectly suggests that measures to minimize construction-

related air pollution will "avoid...impacts on air quality..." No measures are proposed to significantly lower the increases in hydrocarbon, NO<sub>x</sub>, and SO<sub>x</sub>, projected to result from construction.

**RESPONSE:** The discussion in Chapter 12 (Air Quality) of the EIS/EIR has been clarified to avoid this confusion.

2213 Separation of direct and indirect air quality impacts does not comply with case-law which holds that it is inaccurate and misleading to divide a project's air emissions analysis into on-site and secondary emissions for the purpose of invoking the presumption the project would have no significant impact. This DEIS is flawed in the same manner as the cited case.

**RESPONSE:** The separation of direct and indirect impacts is made to more clearly present the consequences of the project. Both direct and indirect air quality impacts are found to be significant (see discussion above).

2166 The discussion of naturally occurring asbestos due to construction, recreation activity, and erosion (reservoir drawdown) should be included.

**RESPONSE:** Impacts related to naturally occurring asbestos were not considered significant enough to warrant analysis in the EIS/EIR.

1933 How are you going to ensure that construction vehicles are properly tuned and maintained? Who will determine the feasibility of fitting them with emission equipment? What does "feasible" mean in this context? "Where feasible" wording is ineffective.

1933 What construction would be restricted or banned on days when air quality violations are expected? Who will determine an air quality violation? Who will determine if activities should be restricted or banned? What are such criteria?

**RESPONSE:** Mitigation measures have been revised to be more specific; "where feasible" has been eliminated. Earthmoving activities would be banned on days of high winds and activities associated with internal combustion engines would be halted on days of anticipated ozone violations. The "Superintendent", as required by Section 208.10, Title 33, C.F.R. of Corps Flood Control

Regulations, would have the ultimate authority to regulate construction activities. (See discussion in Chapter 22 or the EIS/EIR.)

1932 You need to address the air quality conditions in El Dorado County and the project influences on them. The county is a nonattainment area for PM10 and ozone.

1977 DEIS does not disclose how the project will affect pollutant levels in El Dorado and Placer Counties. Growth inducement of Highway 49 will affect air quality. This also needs to be addressed.

1932 Growth-inducing impacts from Highway 49 improvement on air quality have not been addressed. Why did you only address the Natomas area in this regard?

1932 Impacts from construction are not addressed. How many vehicle trips will take place during aggregate transport? What are the effects of these trips on air quality? What are the effects of rock crushing on air quality?

2212 The DEIS does not analyze the air quality impacts associated with truck transport of aggregate material.

1977 How many vehicle trips will be required during aggregate transport?

1932 Mitigation for air quality impacts are inadequate under California statute and case law. They must be specific, mandatory, and implementable. Your mitigation proposal is too loosely worded.

2212 Please explain how the emissions estimates for conversion of agricultural land to urban uses were determined on draft EIS/EIR, page 7-16.

1988 Chapter doesn't discuss air quality analysis for the northern half of Natomas Basin in south Sutter County as currently existing or will develop in the future. No analysis of impacts of TSP or alternatives in south Sutter County air quality. Should reference Sutter County General Plan Amendment and its air quality impacts.

2213 On page 7-16, draft EIS/EIR, the document asserts that the implementation of the TSP and the resultant urban development of Natomas would reduce vehicle miles traveled in the region. This assertion is highly speculative and uncertain. Please provide the necessary data to support this conclusion.

2262 While the Air Quality Section is incredibly well done, it does not address the impacts and mitigation for the excavation and transportation of 6 million cubic yards of gravel and the actual dam construction.

2242 The report does not discuss the cumulative air quality impacts of increased development in the Natomas region except for a conclusory and speculative statement that Natomas development may reduce vehicle miles traveled. You need to project the real impacts of adding 60,000 people to the region.

1952 Growth-inducing impacts should discuss possible extent to which water or air quality in Natomas is affected and the level of significance.

**RESPONSE:** Additional information has been added to Chapter 12 (Air Quality) of the final EIS/EIR to more fully discuss analysis methodologies and impacts resulting from project construction and implementation. Mitigation measures have also been made more specific. Due to the nonattainment status of all air basins affected by the project, all project-related construction emissions of nonattainment pollutants were considered significant over the short term. Impacts resulting from buildout of approved and draft land use plans for south Sutter County, Sacramento County and the City of Sacramento have been estimated and are included in Chapter 12 of the FEIS/EIR. Indirect air quality impacts associated with the in-kind/in-place relocation of Highway 49 selected by the Corps are considered insignificant because this relocation plan would not appreciably alter local traffic or commute patterns. It is recognized that the State may select an alternative relocation plan. However, an evaluation of the indirect impacts of such an alternative plan cannot be made until the plan has been identified.

2212 The DEIS indicates that it considers anything less than a 2 percent incremental increase in subarea emissions from direct impacts to be less than significant. However, it does not explain this threshold. According to a recent CEQA decision, when an area is nonattainment (Sacramento Air Basin), the addition of any amount of emission is considered significant.

2132 It is interesting to note that significance was assigned to an indirect impact. In several other discussions, temporary impacts are considered insignificant by definition.

**RESPONSE:** Significant thresholds in the final EIS/EIR have been revised to reflect the nonattainment status of the air basin. Refer to the final EIS/EIR, Chapter 12, Air Quality, significance thresholds discussion.

2243 The DEIS does not discuss the reduction in commute time from Auburn to El Dorado County and there is no analysis of the air quality impacts that would result from the growth that the easier commute would stimulate.

2213 The report does not explain whether the Highway 49 relocation conforms to an existing SIP or is anticipated to conform. The project's conformity with air quality attainment goals is a critical component of any comprehensive environmental analysis.

**RESPONSE:** Until the preferred relocation alignment is known, an analysis of potential air quality impacts resulting from decreased commute distances and a determination of conformity with the air quality attainment plan is not possible. This determination will be made during the State route adoption process, which is described in Chapter 17, (Cumulative Impacts), of the EIS/EIR.

557 The dam will lead to the depletion of the ozone layer.

**RESPONSE:** We are not aware of any scientific link between the construction activities or operational impacts of a flood control dam and ozone depletion.

## **BORROW AREAS-NATOMAS**

1850 DEIS, page -6, Appendix G, page 6-5 - Identify location and impacts of Natomas borrow site and whether the site is now or existing.

**RESPONSE:** Location of the Natomas borrow area is as described in Chapter 2, Project Description and Rationale Chapter, Project Features Section of the EIS. The description of the impacts to the borrow area has been expanded in the final EIS/EIR and is now addressed in each applicable chapter of the report. Most notably, site specific impacts resulting from borrow activities are analyzed in Chapter 10 (Agriculture/Prime and Unique Farmlands), Chapter 16 (Visual Resources), Chapter 13 (Noise), Chapter 4 (Land Use) and Chapter 7 (Fish, Vegetation, and Wildlife).

## COMMON FORM COMMENT

158	125	145	116	13	138	67	53	230	153	60	95	70
154	96	173	259	262	329	334	263	341	338	211	339	264
213	265	315	258	308	303	243	302	312	301	381	287	254
321	322	323	227	257	316	249	374	266	178	177	371	372
174	182	380	376	377	378	165	379	375	328	292	267	181
268	365	189	440	451	450	476	443	412	430	425	418	477
478	555	549	522	507	411	482	481	383	479	500	382	396
391	480	386	397	407	384	390	393	392	395	394	643	648
647	646	644	705	641	642	697	640	691	666	696	652	657
670	669	677	688	659	658	649	650	655	654	653	676	651
656	673	734	746	745	743	725	726	733	721	592	736	737
738	742	740	735	748	672	750	747	741	744	771	770	773
768	774	765	772	763	762	761	775	789	781	764	508	639
758	304	915	1826	1243	908	1021	1020	1018	1017	1013	927	2055
914	911	929	1025	1022	1081	1073	1072	1071	1033	1029	1027	1026
901	1047	1684	1370	1570	1568	1567	1571	1562	1559	1558	1565	1553
407	1705	1714	1713	1712	1711	1715	1708	1707	1706	1709	1704	1717
141	1716	1734	1733	1735	1728	1720	1719	1718	1727	1701	1672	1655
784	1473	1648	1673	1646	1644	1643	1647	1642	1681	1680	1696	1692
924	1691	1700	1686	1682	1687	1798	2053	2040	2032	2019	1802	1799
327	2028	1797	1536	1780	1710	1689	1736	1649	1474	1214	1795	1768
865	1766	1764	1760	1772	1740	1739	1738	1743	1737	1782	1773	1793
824	1792	1791	1794	1785	1783	1784	1787	1436	1469	1468	1455	1445
845	1470	1441	1438	1437	1442	1425	1476	1475	1482	1481	1480	1483
856	1478	1477	1601	1479	1640	1424	1333	1300	1285	1273	1337	1253
895	1219	1215	1271	1641	1353	1347	1419	1416	1415	1420	1369	1358
896	1355	1576	1612	1597	1596	1591	1614	1585	1584	1580	1590	1573
897	1630	1616	1639	1638	1637	1484	1634	1632	1631	1636	1169	1572
899	1538	1537	1532	1491	1549	1489	1488	1487	1490	1486	1555	

These 376 form comment letters raised the four issues listed below.

Issue 1: I support a river-based NRA in response to BLM's NRA study.

**RESPONSE:** The Selected Plan is intended to neither promote nor impede the use of the project area for other purposes. The Selected Plan will not affect any NRA proposal which may be submitted in the future. Most of the area described is currently protected from development as part of the wild and scenic rivers program (the lower American and part of the North Fork) or as a State Recreation Area (the Folsom Lake area). Discussions concerning the possible eligibility for inclusion of the remaining areas of the North, Middle, and South Forks in the wild and scenic rivers program are contained in Chapter 14.

Issue 2: I am opposed to a 500-foot dam with gates. It will insure the canyons will be permanently flooded sooner or later.

**RESPONSE:** The project described in the Feasibility Report is intended to neither promote or impede establishment of a multipurpose dam in the American River canyon. Any decision to create a multipurpose facility will not be made until after completion of full public disclosure of the impacts which would result from such a facility. Any decision to create a multipurpose facility will, in all likelihood, require Congressional action. See Chapter VIII of the Main Report and Chapter 2 of the EIS.

Issue 3: I support reasonable flood control without a dam. I support Folsom and upstream reservoirs reoperation, Folsom spillway lowering, levee improvements and setbacks, and American River Parkway expansion.

**RESPONSE:** The process used to determine the preferred alternative is explained in Chapters IV, V, and VI of the Main Report and Chapter 2 of the EIS/EIR.

The Corps initially analyzed 27 alternatives for providing flood protection for the Sacramento area. Through an economic and environmental analysis, these were reduced to six alternatives for detailed analysis. During the initial studies, the Corps determined that once an alternative included a dam upstream from Folsom Dam, any upstream dam alternative would be environmentally and economically superior to an alternative that also included reoperation of Folsom Reservoir or additional downstream levees (see Table V-1 in the Main Report). Reviewers of the report, however, found that the Corps had not combined all potential alternatives with an upstream reservoir.

For this reason it was requested that two other alternatives be formulated to provide 200-year protection and an economical analysis made. Both alternatives included increasing Folsom flood releases from a maximum of 115,000 cfs to 130,000 cfs (requiring downstream levee construction), lowering Folsom Dam spillway 15 feet and utilizing upstream power reservoir storage. For existing upstream reservoirs, the Corps' estimates of available storage were utilized, i.e., 47,000 acre-feet for a 100-year or more frequent storm and zero for a 200-year storm. Alternative A increased flood storage at Folsom Reservoir from 400,000 to 590,000 acre-feet (thus requiring an upstream dam with a flood storage of 375,000 acre-feet and a height which is 387 feet compared to 425 feet for the Selected Plan). Alternative B increased flood reservation at Folsom Reservoir to 470,000 acre-feet which requires a 410,000-acre-foot upstream reservoir with a 398-foot-high dam.



Estimated first cost of these two alternatives is: Alternative A \$918 million and Alternative B \$805 million. Since the estimated first cost of the 200-year Selected Plan is \$620 million, an upstream dam project is more economical.

Issue 4: I support full flood control project mitigation, including assurances that development is not located in the deepest portions of the floodplain, acquisition of Natomas wetland acreages for endangered species, minimizing impacts to habitat on lower American River habitat from levee improvements, and requiring allocation of Folsom water for downstream fisheries.

RESPONSE: The project will provide reasonable and justifiable mitigation for impacts to the environment resulting from construction activities. Mitigation for endangered species will be accomplished in accordance with the conditions of the Biological Opinions received from the U. S. Fish and Wildlife Service and California Department of Fish and Game. See Chapters 8, 9, and 22 of the EIS/EIR for a more detailed discussion.

## COST

15	63	105	64	324	370	271	197
293	202	350	575	464	472	662	595
724	701	687	782	767	149	159	74
66	55	285	409	298	335	417	255
351	354	571	587	609	622	618	459
558	612	627	625	441	624	592	492
463	546	510	611	486	483	488	775
716	660	667	665	711	685	633	661
680	79	102	276	128	190	209	101
183	166	561	515	529	606	373	489
429	621	95	408	754	718	791	719
62	326	206	540	415	36	487	826
966	819	918	921	922	967	948	928
954	932	891	923	936	879	969	977
804	934	991	1139	1107	1000	1079	1119
996	1145	1279	1185	1151	1220	1142	1366
1350	1328	1356	1348	1421	1361	1452	1667
1593	1598	1516	1663	1618	1669	1566	1579
1741	1899	912	898	964	942	917	960
962	919	958	959	963	914	908	907
961	911	801	833	1078	1103	979	1108
1092	1137	983	1126	1150	1157	1163	1148
987	986	982	1165	1125	1030	1136	980
1141	1040	1360	1225	1362	1238	1232	1581
1582	1575	1561	1624	1504	1389	1635	1501
1496	1433	1790	1698	1749	1861	909	926
974	1133	1099	915	953	956	920	1049
988	1007	1001	976	1335	1543	1827	1747
1800	1753	1688	971	972	1124	970	1752
1592	1699	1895	1116	1910	2048	2030	2050
2037	2049	2035	2047	1172	1922		

Common Comment #5 - The overall cost of the Auburn Dam is too expensive given the current financial climate in State and federal governments.

1153 Why build a billion dollar dam when the State has a \$13 billion deficit?

1116 This report is the best way to kill a flood control project for Sacramento, in view of the enormous federal and State budget deficits.

1910 With the help of a couple of 800-pound gorillas (known as the federal and State budget deficits), I believe we are going to stop your project.

2017 It is expensive and goes against economic sense.

**RESPONSE:** There are many competing demands for State and federal tax dollars in today's financial climate. Chapter VI, Plan Selection, of the Main Report has been expanded to include a fuller discussion of the economic justification of the alternatives.

- 9 I am particularly upset about the enormous cost of the proposed dam, in light of the fact that 100-year flood protection can be provided without any dam whatsoever.
- 81 In terms of flood control, the Auburn Dam still has unanswered questions about cost effectiveness.
- 21 My experience has been that flood control plans always have costs which are not assessed at the outset and no real benefits.
- 241 The dam would unnecessarily cost the taxpayers more than a billion dollars since more sensible flood control alternatives cost much less.
- 20 There are other, cheaper ways we can control the flooding.
- 6 The billion dollar cost must be an example of overkill.
- 137 This dam is too big and too expensive.
- 65 This is an excessive cost for a "flood control" only dam.
- 706 Dam is very costly. Tax dollars would be better spent on a smaller scale flood protection action in Sacramento.
- 107 Flood control can be accomplished with alternatives that cost much less.
- 17 I feel there are other measures besides a dam that would be less costly (monetarily as well as to the landscape) in the long run.
- 453 Massive expense of dam at severe environmental cost is unacceptable.
- 699 Taxpayers dollars can be better spent on fortifying the levees  
700 and conserving the existing riverflows.
- 92 The less draconian alternatives will provide adequate flood control without the environmental impact and at far less cost to taxpayers.
- 574 There are less costly alternatives to the dam.

- 89 There are less expensive alternatives.
- 682 There are other solutions which provide flood protection to Sacramento County which cost less money. Federal projects often get completed even if they run over budget.
- 274 There are suitable and cheaper alternatives available to assure the desired flood protection for Sacramento.
- 678 A small ungated dam would reduce the cost of the project to a more reasonable level.
- 484 I'm tired of paying for overengineered projects, and this strikes me as one.
- 768 Taxpayers should be aware of less costly alternatives. They shouldn't have to pay for something they don't need.
- 31 The 100-year level of protection could be attained at a much lower cost than the tentatively selected plan.
- 188 We should maximize existing operations, particularly financial and water problems.
- 1221 Damming the river to prevent flooding that occurs less than every 100 years is an unnecessary cost to the taxpayers.
- 820 I don't think spending \$2 billion for a dam is worth it when levees would cost only a few hundred thousand.
- 1884 The Corps estimate that the 400-year plan will cost \$836 million but if we had just 100-year protection, everyone would not have to pay flood insurance, therefore lowering the price from \$836 to \$550 million.
- 1503 This dam is oversized and overpriced.
- 1095 It is going to cost several hundred million dollars to reduce the risk of my home near the American River. That doesn't seem worth the investment for the taxpayers.
- 2059 The dam as proposed would cost taxpayers millions more than is actually required for flood control protection.
- 2071 We are convinced that the economic expense to be incurred for flood control potential only, with no revenue generation from power and water, is a waste of taxpayers resources.

**RESPONSE:** There are less costly methods to reduce flood danger in Sacramento. However, as described in Chapter VI (Plan Selection Process) in the Main Report, the most cost-effective and least environmentally damaging practicable alternative plans include a

flood detention dam near Auburn. The Selected Plan has been revised to the 200-year plan which is less costly than the tentatively selected plan in the draft report. Chapter VI has been revised to describe the cost, benefits, the appropriate level of flood protection, and environmental justification for adopting the 200-year plan. Chapters IV and V have been revised, presenting more detail on the screening process to determine the most economical and environmentally acceptable measures and alternatives within each level of flood protection.

61 I'm sure there are more economical methods of flood control and encouraging people to conserve energy and water would be better in the long run.

674 Even though we might have lots of water, it would not be profitable because of the extreme cost.

336 I am fed up with misappropriation of my money for this unnecessary reservoir. It is a windfall for developers and water sellers.

**RESPONSE:** Even without considering economic benefits to the community from future development, flood damages prevented to existing facilities (residential, commercial, public, and industrial) far outweigh project costs, as discussed in Chapter VI of the Feasibility Report.

767 You need a more economical solution to the flood control problem and water storage problem.

238 I'm aware that we're in a drought but the water produced will be too expensive for anyone to buy.

751 Money would be better spent on what is already here and on water conservation.

306 Two billion of today's dollars to build the full Auburn dam is inexpensive.

1876 We are uncomfortable with spending 800 million tax dollars for something that does not provide an acre-foot of water or a kilowatt of energy.

1098 If this dam is really cost effective, why is only the federal government paying for it and we can't even sell the water behind New Melones.

1858 It is my opinion that 800 million might as well be floated  
1856 down the American River. I realize the cost of a full service  
1857 dam would be higher, but the cost of maintaining and operating  
a dry dam would be higher, but the cost of maintaining and  
operating a dry dam would cost taxpayers much more in the end.

1032 Our tax dollars would go to operate this dam of yours which  
would not give us year-round drinking water, power,  
agricultural water and water for the Delta. I do not support  
your plan.

1043 This plan will cost 2/3 the amount of the one we voted for ...  
why?

1860 The Corps plan also will cost Placer County residents since it  
ignores previous costs borne by county taxpayers to construct  
the tunnel to access Auburn Dam water via gravity. Under the  
Corps' plan, expensive pumping will be required to get water  
to the tunnel.

1872 There is some confusion over whether a multipurpose dam can be  
financed or not. It will be financed like any other dam,  
through taxes, just like the dry dam. The difference would be  
that the multipurpose dam could pay back the costs through  
sale of water and power.

**RESPONSE:** The multipurpose Auburn Dam project, as well as the  
water supply needs in the American River Basin, are described in  
Chapter VIII of the Main Report and in the Plan Formulation  
Appendix. Chapter I, Section Authority, discusses the  
Congressional authorization related to the previously authorized  
multipurpose Auburn Dam. The Selected Plan does not include any  
water supply development. The proposed dam at the Auburn site has  
flood control as the single-project purpose.

420 I think this is a terrible waste of money and resources that  
could be better used elsewhere.

366 Spending these monies for this at a time when school programs  
are being cut, the homeless rate is growing and environmental  
concerns are foremost in people's minds is ludicrous.

679 Tax dollars can be better spent than on this dam.  
1023

364 This is poor use of financial resources when education, health  
care, and pollution pose far greater threats to the State.

283 This plan's cost could instead be applied to a wide variety of  
other environmental, social, and public needs in our state.

984 The money could be better used for our country's education  
287 system.  
1325  
1024

366 Ludicrous when school programs being cut, homeless rate  
growing, and environmental concerns are foremost in people's  
minds.

1120 The cost is too extreme. The money is better spent on  
education or balancing the budget.

1332 Taxpayers should not be asked to subsidize such a costly  
effort.

2045 The dam would be a waste of money.

354 The next time such a project is planned, people should be  
asked how much they are willing to pay.

**RESPONSE:** Flood control is one of several competing needs for tax  
dollars in today's financial climate. Establishment of spending  
priorities to meet these competing demands is ultimately  
accomplished through State and federal Congressional authorization  
and appropriations processes, which set priorities for funding of  
competing programs.

30 For all its huge cost, destruction of miles of good  
recreational river, and loss of anadromous fisheries, what is  
gained?

634 I support flood control but the direct fiscal costs and the  
environmental costs outweigh the benefits.

343 The cost of the dam is too high already without taking into  
account the environmental cost.

413 The cost of the plan is enormous - both financially and in  
terms of the devastation to the beneficial river and canyons.

325 The dam would destroy much of the river's natural and  
recreational value while expending great amounts of tax  
dollars for questionable results.

4 An expandable dam with a \$1 billion price tag, is too costly  
from an environmental and financial standpoint.

330 Do not degrade the American River system for an exorbitantly  
priced, unnecessary dam. Use less expensive alternatives.

- 1514 This plan is a waste of time and money, not to mention the unnecessary environmental cost.
- 1028 This project is fiscally irresponsible and very detrimental to both the environment around the river and to the community.
- 512 Please consider the costs to correct all the problems that will arise from the projects impacts.
- 288 Alternatives to the dam at reasonable cost exist. Cost of the 400-year dam is excessive.
- 819 The environmental and recreational costs do not appear justified for the extra flood protection gained, its just too small.
- 1898 Auburn gets the loss of the beautiful river canyons and access to them and gets only uncertainty that there will be money available to rebuild recreation areas after flooding.
- 1840 The environmental mitigation costs don't include land costs. All costs associated with the project must be included to determine project practicability.
- 2020 The dam is the most expensive and most environmentally damaging way in which to protect Sacramento from flooding.
- 2063 Don't waste our money. Please save the American River.
- 2055 Did you consider the costs of mitigating potential water removal from the river and the cost to keep sediment out of the river from aggregate processing in your cost estimate for the TSP?
- 2181 The cost-benefit studies neglect ecosystem functions that are essential for aesthetic/recreation and balancing elements such as clean air, water, soil, etc. The public must know the benefits they obtain from nature in its undeveloped state, yet this document does not offer that opportunity.

**RESPONSE:** All adverse environmental impacts are described in the EIS/EIR. Costs of the project, including environmental mitigation costs, are included in the total project cost and displayed in the Chapter Selected Plan. Environmental costs associated with not implementing a flood control plan have been more clearly defined in the Main Report in Chapter VI, Plan Selection Process. This chapter has been expanded to provide a clearer depiction of the environmental tradeoffs of the various plans, and also has been expanded to more clearly depict how the Selected Plan best meets all criteria to provide flood protection.



369 This project has limited benefits for a tiny percentage of the nation's population.

**RESPONSE:** The Sacramento area represents a major metropolitan community within the nation. A summary of average annual economic benefits of the various protection level plans is described in Chapter V, Alternatives Plans Considered, and Chapter VI, Plan Selection Process. These represent protection of significant resources which contribute to the gross national product. Cost, benefit, and the economic optimization analysis described in the above chapters demonstrate a justified national interest in protecting these resources.

619 Has the Corps figured out the cost to the average homeowner for building this dam?

1103 Auburn will cause an additional burden to the individual taxpayer.

1183 What is the realistic estimate of how much this project will cost each person paying for the local share, including mitigation cost?

1907 I am personally prepared to pay my share of the cost of this project.

1675 Who is supposed to raise the money for this project?

88 The people being protected on the floodplain should pay the complete cost.

2042 I am curious as to where funding is to be obtained for this one billion dollar project.

2023 Those benefiting from this additional benefit must bear all the cost directly.

2021 Because FEMA has accepted a 100-year level of protection and it costs less than the TSP, then the increased costs should be paid by those benefitting.

2195 Please discuss the ability of the local, non-State sponsor to pay the full nonfederal share.

**RESPONSE:** Chapter VII, Selected Plan, provides information regarding the cost sharing responsibilities between the federal government, the State of California, and the Sacramento Area Flood Control Agency (SAFCA). SAFCA has initiated a special benefit assessment district to provide the local share for financing of the American River Project pursuant to its authority under the

Sacramento Area Flood Control Agency Act approved by the State Legislature.

The assessment district essentially identifies the properties which will benefit from the proposed project and spreads the associated costs to the parcels in a fair and equitable manner relative to benefit received. An assessment was approved for 1991-1992 to fund the local share of the flood control study costs and SAFCA's administrative costs. A future capital assessment is being proposed to provide the local share of the construction costs after the project is authorized.

83 Save money and avoid damming this beautiful river.

27 The cost for Auburn Dam is too expensive.

708 The cost is more than the taxpayers can afford. Cost overruns will push the estimated cost of \$2 billion up to \$3-4 billion.

586 The cost of this project is ridiculous and a terrible waste of  
1241 taxpayers' money.  
1521

307 The dam would be a huge waste of money.  
1259  
1158  
1326  
1430  
1864

314 This dam costs too much.  
1522

108 Your project is a disastrous boondoggle - \$2 billion after  
681 cost overruns.

313 This dam is very expensive and is therefore unacceptable.

1626 I am unwilling to subsidize this \$1 billion project.

1178 If this project is built, I'll pay through local assessments  
and taxes, but I'll also pay if our community is flooded.

1902 I am appalled at the gross and obscene abuse of taxpayer's  
money.

1879 \$800 million is not enough, it is probably more like \$1.5  
billion.

1827 Overruns and unincurred costs (mitigation) will raise the price tag.

1183 When was the last time the Corps had a project with a projected cost of nearly \$1 billion that went through on budget and on time?

1111 I am concerned about the Corps history of cost overruns and wonder if this project will also exceed the Corps' cost estimate.

37 The ultimate environmental damage that this dam would create for any flood control benefits for Sacramento is not worth the incredibly heavy toll taken on the North and Middle Forks of the American River. We firmly believe the Auburn Dam is an egregious example of Corps "overkill".

2147 Without all the environmental impacts identified, the total project costs cannot be determined. How can the Corps recommend a TSP without potential major costs identified? How can decision-makers choose when all costs are not shown?

2128 What preposterous guesswork goes into your estimate of \$1.8 million mitigation costs?

**RESPONSE:** Chapter VII, Selected Plan, includes a cost estimate, including mitigation costs and costs expended to date on the flood control project for the Selected Plan. These cost estimates were developed using detailed methodologies in order to obtain the most accurate estimate possible. Flood damage estimates found in Chapters V and VI of the Main Report reflect potential costs to residents of the floodplain and taxpayers should flood protection not be provided. The costs of the Selected Plan are much less than the potential costs should the floodplain be flooded.

565 This project is not worth the price. You need to pursue less costly alternatives.

702 I object to the expenditure of tax dollars for the bad choice of this dam.

758 The expense of a 500-foot dam should encourage the Corps to consider other alternatives.

246 Flood control and recreation can coexist with less impact than a billion dollar, tall dam - especially in this era of massive deficits.

90 I also support reasonable flood control alternatives which would meet federal standards without a dam and at much less cost.

836 The dam would be a waste of money and it could be better spent on perfecting Folsom Dam.

1884 I don't think the relative cost of each of the plans is included in your report.

1859 Please consider other alternatives that cost less.

750 Alternatives could provide sufficient protection at a fraction of the cost of the big dam at Auburn.

1957 Although 100-year FEMA protection would provide fewer economic benefits, it could be achieved at lower initial and overall economic cost and have substantially lower environmental costs.

**RESPONSE:** Chapter V, Alternative Plans Considered, and Chapter VI, Plan Selection Process, have been expanded to more clearly describe the environmental, cost, public health and safety, and acceptability factors which led to the selection of the 200-year plan over other alternatives. These sections of the Main Report describe comparative costs of all the alternatives.

1184 Considering my potential losses through a major flood, the cost of this project constitutes one of the best insurance bargains of the century.

1179 I would rather spend my money in taxes to build this dam than to pay flood insurance premiums.

**RESPONSE:** Comment noted.

1075 It would be more cost effective to put the two billion dollars into an insurance fund and pay for any such flood damage as might occur every several hundred years.

**RESPONSE:** Table III-5, "Average Annual Without Project Damages for Total Flood Plain", in Chapter III of the Main Report, indicates that the average annual damages in the floodplain that can be expected over a 100-year time period are \$190,802,000. The investment of \$2 billion at 8-7/8 percent produces an annual equivalent amount of \$177,540,000. Comparing the annual equivalent amount of money generated by the investment of \$2 billion with the average annual damages shows that this investment would not be

sufficient to completely cover average annual damages. The Selected Plan is much more effective in correcting flooding problems, since the investment cost is well below \$1 billion.

1471 The dam is a waste of time and money.

916 This is an enormous financial burden with questionable results.

21 My experience has been that flood control plans always have costs which are not assessed at the outset and no real benefits.

2073 Corps has continuously underestimated costs of building projects, probably overstated flood damage costs.

1339 The dam is not cost effective. It is a boondoggle for a few companies at the taxpayer's expense.

2027 I would like to see a list of the companies that would gain financially if the dam were built and an estimate of the projected benefits to local economies in length of years if it were built.

2194 The confidence level of the Corps in their cost estimates is always high but history shows that this confidence is completely unfounded. Major Corps projects frequently cost twice and sometimes several times more than their original cost estimates. Please provide an analysis of the pace of Congressional Corps assumes. Please provide analysis of the annual federal appropriations the project would require.

**RESPONSE:** The Corps has assessed many alternatives for providing flood control. Through its problem identification and plan formulation process, the Corps feels that it has identified the most practical and effective solution to Sacramento flood control problems based upon environmental, economic, public health and safety, and acceptability criteria. Please refer to Chapter V, Alternative Plans Considered, and Chapter VI, Plan Selection Process of the Main Report, for additional detail.

1249 I don't want to pay for the loss of natural resources.

1121 Is the cost of the project, both financially and environmentally acceptable? Destruction of the Middle and North Forks is unacceptable.

452. The Corps must be fully cognizant and responsive to environmental claims as well as cost-effective flood control.

2016 The growth and flood control arguments for a dam are far out weighed by the high cost and loss of wild rivers.

**RESPONSE:** Discussions in Chapter V, Alternative Plans Considered, Chapter VI, Plan Selection Process, and Chapter VII, Selected Plan, of the Main Report and throughout the various chapters of the EIS, document the environmental tradeoffs of the various alternatives. During environmental evaluations, it became apparent that 100- and 150-year protection level alternatives would result in significant environmental impacts to the lower American River. The 200- year and 400-year protection level alternatives had environmental impacts primarily in the upper canyon area while avoiding impacts to the lower American River. The Corps' plan selection process and rationale for choosing the Selected Plan is described in Chapter VI, Plan Selection Process of the Main Report.

891 The Bureau's last estimate was \$1,400,000,000 in 1986 dollars. The Corps claims that the 400-year dam will cost only \$836 million. When you factor in costs for environmental mitigation, it will be over \$1 billion- a cost that the taxpayer must shoulder 100 percent.

1172 The Corps' price tag of \$836 million is misleading and doesn't include interest and other costs. In fact, the total price is well over \$1 billion.

1187 The price tag of \$836 million doesn't involve sunk costs, interest, inflation, or cost projection inaccuracies. New Melones ended up costing almost twice the original estimate.

2264 The document should reflect a more honest assessment of costs.

**RESPONSE:** Table VII-2, "Selected Plan Cost Estimate", gives a complete cost estimate of the Selected Plan. These costs include construction, lands, relocation, rights of way, and costs expended to date on the flood control project, and environmental mitigation costs.

1435 Your study doesn't include all of the indirect costs of a dam. I would like to see the cost of the TSP once all the environmental mitigation costs are included.

1211 Why is it that you did not see fit to present these nondirect (indirect) federal costs in this DEIS?

2148 The total costs for building the dam should be identified in the beginning and the money provided for before the project is begun.

**RESPONSE:** Indirect impact mitigation costs are not included in project costs. Indirect impacts are those primarily associated with induced growth that may occur as a result of the construction of the project. These impacts do not occur unless this future growth occurs. Consequently, indirect impact mitigation is the responsibility of those implementing future growth projects.

684 The cost of this dam would be carried 75 percent by the California taxpayer.

**RESPONSE:** Table III of the Executive Summary in the Main Report presents the estimated share of total project costs allocated to nonfederal interest is about 30 percent.

1236 The dam is super expensive and only supports the power  
1237 builders.

**RESPONSE:** The Selected Plan includes a flood control-only detention facility at the Auburn site. No hydropower generation is included. The estimated cost of implementing such a flood control facility is much less than damages that would be incurred should no project be put in place and floods occur. Please refer to Chapter III, Sacramento Area Flood Problems, Chapter IV, Plan Formulation, and Chapter VI, Plan Selection of the Feasibility Report, for additional detail.

1472 The dry dam is too expensive, but the multipurpose dam could pay for itself.

1199 Sacramento County taxpayers will be billed for a structure that will cost now and in the future. A dry dam can't pay for itself.

1876 We feel that the \$800 million plus the announced funding from other sources for a multipurpose dam would be in the best interest of our economies.

2044 A dry dam wouldn't even pay for itself and would be the most expensive dam in California.

**RESPONSE:** A dry dam pays for itself by preventing loss of life and flood damages to structures and property which would occur when no

protection is provided. Costs associated with these damages are much higher than the cost of the dry dam. If left unprotected, taxpayers would also pay through flood insurance premiums and through claims against the National Flood Insurance Program administered by the Federal Emergency Management Agency. Please refer to Chapter III, Sacramento Area Flood Problems, Chapter IV, Plan Formulation, and Chapter VI, Plan Selection of the Feasibility Report, for additional detail.

1884 Natomas demands to have the costs broken out for how much more the dam is going to cost as opposed to the other alternatives, specifically the 100-year alternatives.

**RESPONSE:** Discussions of costs have been expanded in Chapters V and VI of the Main Report.

397 The life span of the dam due to silting does not warrant such an expense.

**RESPONSE:** Due to the sediment catchment action of existing upstream storage dams very little sediment will reach the Auburn Dam site. Most sediment that would be carried to the detention dam would be washed through to Folsom Reservoir, as currently occurs. Very little sediment would be retained in the reservoir area. The dam under the Selected Plan has been designed to accommodate any expected sediment that would occur over the project life. See Chapter VII of the Main Report.

2074 Original feasibility study cost estimate was \$2.5 million. May 1990 cost estimate was \$5.5 million. What is the actual cost of the Feasibility Study to State and federal governments? Why the great increase? What remains to be included in the feasibility studies?

2074 What is reasonable estimate of future cost of the feasibility study? Is 120 percent increase in total cost of project also to be expected?

**RESPONSE:** The total estimated cost of the feasibility study is about \$10 million. Increases from original estimates were largely due to the complexity of the engineering and environmental considerations related to the project. Additional costs are also related to an expanded public involvement program developed primarily because of the sensitivity of the project. Historically, feasibility studies have cost about 2 percent of the total project construction cost.



2075 Several sources indicate price of dam itself to be 25 percent above the original estimate of \$726 million. What is the current estimate of minimum and maximum amounts?

2075 How many Corps dam projects (over 200) since 1966 have come in under projected costs and by what percent? How many have been built at projected costs? How many projects have exceeded estimated costs? By what percentage were they exceeded?

1960 The real costs are glossed over including mitigation measures, inflation, and the many unresolved factors. Given the Corps' history this project could cost 2 to 3 times the current estimate.

**RESPONSE:** Total project costs are developed based upon detailed cost estimating methodologies instituted within the Corps during the mid-1980s. These methodologies are designed to give more accurate construction cost estimates. For this project, these are shown in Table VII-2 of Chapter VII in the Main Report. These construction cost estimates are expected to be within 20 percent of the final construction cost.

2076 Cost Sharing: Feds-73 percent - State-18.9 percent and Sacramento County and others-8.1 percent. Local government is paying 27.1 percent for the project with unknown total cost and land costs. Project then turned blindly over to Bureau of Reclamation. What is maximum local government would have to pay.

2101 The financial analysis of the capability of a nonfederal sponsor to participate in the proposed project seems superficial for a feasibility-level report, particularly in view of the magnitude of anticipated costs.

**RESPONSE:** Expected cost-sharing percentages and amounts for the federal and nonfederal sponsors are shown in Table IX-1 of Chapter IX in the Main Report. Project operation and maintenance is the responsibility of the nonfederal sponsor; in this case, the Reclamation Board of the State of California and Sacramento Area Flood Control Agency. It is likely that operation and maintenance of the facilities, once constructed, would be carried out by the Department of Water Resources, not the Bureau of Reclamation, and will be funded by SAFCA.

1956 A M-P facility can best meet the needs of the greatest number of people at the lowest cost per capita.

2121 A multipurpose facility can best meet the needs of the greatest number of people at the lowest cost per capita.

790 A multipurpose dam would provide a source of nonpolluting power and contribute to the economic vitality of the Sacramento region.

**RESPONSE:** A multipurpose facility will provide more benefits than the proposed flood detention dam; however, federal law requires that local agencies finance the costs of water supply and power purposes. Local funding sources for these purposes were not available during the time that these studies were prepared. An economic analysis of implementing a flood detention dam at this time versus a multipurpose facility sometime in the future is described in the Appendix B, Plan Formulation, under the section entitled, "Special Plan Formulation Considerations - Multipurpose Auburn Dam Project".

2083 Since 1986, how much has the Bureau of Reclamation spent on studies of conversion of Auburn from a dry dam to a multipurpose dam? Are there requests for funding in the fiscal year budget- how much?

2083 Does the GAO review funding for the Corps and has it reviewed the 400-year dry dam? What government agency will review the funding?

1967 Does GAO review funding for Corps and has it reviewed the 400-year dry dam? What government agencies will review funding?

**RESPONSE:** We are not aware of any studies done by the Bureau of Reclamation regarding conversion of a dry dam to a multipurpose facility. In 1991 the Bureau of Reclamation initiated a water needs study, including evaluations of a multipurpose Auburn Dam. No Government Accounting Office review of funding of the Corps has been done. Prior to submission to Congress, several government agencies will review the proposed project, including the Office of Management and Budget.

1967 Corps mitigation for upper river habitat loss is \$1.8 million. U. S. Fish and Wildlife Service says it will be \$420 million. If we split the difference, the cost increase is more than 200 million, making any cost benefit less positive and jeopardizes the project if local taxpayers must assume mitigation liabilities.

**RESPONSE:** Costs for mitigation are shown in Chapter VII, (Table VII-2) of the Main Report. Mitigation features are described in detail in the EIS and summarized in Table VII-1 of the Main Report. The differences in mitigation approach between the FWS and the plan proposed in this report (which led to the cost difference) are discussed in Chapter 22 of the EIS/EIR.

1970 In assigning cost for operation, the study cites replacement water and power costs at \$300/acre-foot and 100 mills/kwh. Regardless of other facts and considerations, those costs should reflect actual and realistic costs for those commodities and \$10/acre-foot and 40 mills/kwh.

**RESPONSE:** The costs used in the analysis of alternatives reflect current accepted water and power values to be used for estimating costs over a 100-year project life. Water costs of \$10/acre-foot reflect approximations of current price levels for the Bureau of Reclamation's Central Valley Project water. Water supply projections described in Chapter V and Chapter VIII indicate current water surpluses will be exhausted in the near future. Other than new sources, no existing relatively inexpensive water and power supply will be available over the project life.

2075 Highway 49 relocation costs estimated at \$98.6 million in the report. Auburn paper cites cost of \$200 million. What will be the updated cost of the bridge? Is this included in the annual benefits, costs, and net benefits graph?

**RESPONSE:** The Highway 49 relocation proposed in the Selected Plan is an in-kind replacement of the existing facility and does not propose extensive realignment of the highway. There is the possibility that the State, through the Department of Transportation, will desire to relocate the Highway in another location with improvements. This is discussed in the Cumulative Impacts Chapter of the EIS. The \$200 million cost of the highway relocation found in the Auburn newspaper likely reflects an estimate of an upgraded Highway 49 from north of Auburn to Highway 80. All costs associated with the proposed in-kind replacement of the existing Highway 49 bridge and roadway are reflected in the cost and benefits analysis.

2076 Does the benefit-cost graph include 1) cost of demolition of dam at end of useful life; 2) cost to government if the dam fails; 3) cost to Sacramento and State if dam fails; 4) costs due to loss of esthetics, recreation, and useability of river

(i.e., effects of aggregate extraction on scouring of Middle Fork)?

**RESPONSE:** The benefit-cost graphs do not include costs of demolition of the dam at the end of its useful life or cost to the federal, State, and local governments if the dam fails. If properly maintained, the useful life of the dam is significantly greater than the economic analysis period of 100 years. The dam is designed to prevent failure and so no costs are included for this occurrence. Costs due to loss of esthetics, recreation, and useability of the river have been included. The proposed aggregate source for construction of the dam at the Auburn site has been changed and is described in Chapter VIII of the Main Report.

2080 Has earthquake damage to Auburn been included in the benefit-cost analysis?

1104 Cost associated with potential dam failure related to earthquakes must be included in the costs of the project.

**RESPONSE:** The dam has been designed to withstand the maximum credible earthquake and, therefore, costs for such an occurrence have not been included. The dam would not increase the threat of earthquake to the community of Auburn. See a more detailed discussion in Chapter VIII of the Main Report as well as Appendix M.

1839 Costs and benefits of recreation components should be evaluated separately from the project since they aren't part of the overall basic project purpose of flood protection.

**RESPONSE:** A break out of costs and benefits for the recreation elements of the Selected Plan are included in Chapter VII of the Main Report, Chapter 14 of the EIS/EIR, and Appendix H.

1209 Your plan does not offer to repair the existing Bureau of Reclamation site, despite moving the damsite downstream. Not recommending repairs does not create a true baseline for the canyon. Your cost-benefit ratio is altered in favor of the TSP by the exclusion of these repair costs.

**RESPONSE:** Rehabilitation of the existing damsite is the responsibility of the Bureau of Reclamation. A determination of the need and extent of rehabilitation work has not been made. The proposed flood control project is separate from the Bureau of

Reclamation's multipurpose project. Consequently, such repairs have not been included in the analysis.

- 1178 If this project is built, I'll pay through local assessments and taxes, but I'll also pay if our community is flooded.

RESPONSE: A flood control project can, in the absence of a truly enormous outlay of money, only reduce the probability that an area will flood; it cannot eliminate the threat of flooding altogether. However, that means a reduction in the probability of loss of life and property. It is up to the local citizens, expressing their support through their willingness to pay for the project, to decide whether the reduced probability is worth the cost of the project.

- 2195 Please compare expected appropriations to the Corps' annual civil public works budget for the past several years.

RESPONSE: The civil works program nationwide has been declining for the past several years. However, given the potential for catastrophic losses to life and property in the floodplain along with the high net economic benefits generated by the Selected Plan, there is great confidence that future appropriations will be sufficient to construct the recommended project.

- 2195 How will the willingness of the nonfederal sponsor to fund its share of the project costs be expressed if there is no signed cost-sharing agreement and no State authorization (Page IX-1)? In light of the state deficit, it is important for the report to contain an "ability to pay" analysis as required by principles and guidelines. Please compare State appropriations the project would require with the last several years of annual State budget amounts for flood control.

RESPONSE: The willingness to fund the nonfederal project costs will be contained in a "letter of intent" to the Corps, signed by a State of California representative. State appropriation for the project would be substantially larger than the annual State budget amounts that were required for the last several years. Financing of the project is discussed in Chapter IX of the Main Report.

- 2196 The report does not include a financing plan as is required by Chapter 6, Section XIV of the P&G. There is no appendix on local cooperation as is recommended in P&G paragraph 6-84. Please discuss the problems that occurred with accurately

estimating the cost of the study and describe the weakness and uncertainty related to the cost estimate for the project.

RESPONSE: A description of project financing is included in Chapter IX, of the Main Report. Local cooperation requirements are also included in Chapter IX and in Chapter XI, Conclusions and Recommendations. The scope of the study changed several times due to changes in regulations and guidelines as well as evolving study conclusions. Significant additional effort was required to address environmental concerns, more detailed design and cost estimates, expended public involvement and coordination, and increased management efforts of the cost-sharing partners. One advantage of the additional effort was the requirement for a more detailed design and cost estimate of the Selected Plan than has normally been accomplished during feasibility scope studies. Accordingly, the estimated first cost for the plan is believed to be highly reliable.

2024 Let the developers pay for the dam. Leave the financially strapped government out of it and the taxpayers too.

RESPONSE: While a flood control project will allow further development in the Natomas area, and to that extent benefit the Natomas landowners and developers, the project will not likely cause anyone to move to the Sacramento area that would not have moved here anyway. Therefore, the growth that will go into the Natomas area will be at the expense of growth in another part of the Sacramento area and at the expense of landowners and developers in that area. On a regional basis, therefore, development is not induced by the project.

2179 No benefit-cost analysis has been done of measures to ensure that the American River levees can accommodate flows of up to 3 feet of freeboard.

RESPONSE: Whether the American River levees can accommodate the flows is a hydraulic engineering question and not an economic one. The economic analysis assumes that the project as designed will fulfill that function. With that assumption (and some others--such as interest rate, the value of various commodities, etc.), an analysis is conducted to measure the benefits and the costs of the project as one means of evaluating its usefulness to society.

2189 No support is given for the statement that constructing offstream storage would not significantly increase flood protection. Rejecting the concept in part because DWR in 1982

estimated that it would cost \$100 million is unjustified in light of the over \$800 million cost of the TSP.

**RESPONSE:** In addition to cost, this alternative was rejected because it had limited capability of increasing downstream protection and the proposed storage area has had substantial residential and commercial development, which would be impacted, since DWR made its cost estimate, which would raise the cost of this alternative well beyond \$100 million. Additionally, many homes would have to be relocated, as described in the augmented discussion in Appendix B, Plan Formulation.

2195 Is a cost estimate which includes projected inflation rates provided?

**RESPONSE:** Cost estimates are based on October 1991 price estimates. To inflate the dollar amount of costs and benefits over the 100-year life of the project would require guesses that would most assuredly be incorrect. Additionally, not only is rate of inflation for a particular commodity likely to be different than that for other commodities, it will vary itself year to year. By putting costs, which occur in different times, on a common basis (in this case October 1991), those problems are solved.

2186 The need to pursue cost-effective, incremental improvements to reduce the flood risk in Sacramento is important given current fiscal realities. Relying on a costly upstream dam as the means of flood damage reduction will likely leave Sacramento at flood risk for a considerable time into the future.

**RESPONSE:** Folsom Dam and Reservoir and the levees downstream along the lower American do provide flood protection but it is inadequate for this highly urbanized area. The next increment to the existing project is the upstream dam since it is the only project that can provide 200-year protection, the minimum recommended for the area.

2187 Identification of net economic benefits required by NED analysis has failed to take into account significant costs attributable to the project. At least three broad categories of cost should be attributable to development of Natomas: public costs directly attributable to development of Natomas; public costs resulting directly from adverse environmental impacts; and economic value of lost or damaged environmental resources.

**RESPONSE:** The benefits have been estimated in accordance with policy and planning guidance for conducting civil works projects by the Corps of Engineers. The benefits have been determined using National Economic Development criteria. The benefits are primarily inundation reduction where flood damages to structures are reduced under project conditions. Appendix C, explains the procedures used in determining average annual benefits. Chapter IV, Optimization of Appendix C, shows the benefits, costs, and net benefits for several alternatives. Alternatives having benefits that are greater than costs are economically viable.

2202 Given the above, any projected economic benefits estimated to be derived from the proposed project in terms of potentially reducing flood flow damages should be reevaluated in the light of the tenuous assumptions made with regard to the actual level of protection offered by the project.

**RESPONSE:** There is no known historical nor physical evidence to support a position that extreme events with similar return periods would occur in the American River and Sacramento River simultaneously. Further, even if they were to occur, stages along areas of the Sacramento River or its tributaries adjacent to Natomas influenced by Sacramento River would only be marginally greater due primarily to levee breaks in other areas of the river system. Accordingly, under with-Selected Plan project conditions, stages would (1) not be sufficient to force a failure of a levee into Natomas and (2) not influence backwater conditions upstream along American River to the extent to cause levee failure.

2101 The annual costs of the six action alternatives listed are summarized in Table V-17, but no cost components are provided. Annual costs for the 100-year and 150-year alternatives presented in Table V-17 in report and Table IV-3 in appendix are identical but the same costs of the 200 and 400 year alternatives shown in the same tables differ by some 10 percent. Without further discussion it is unclear whether adverse impacts on the CVP were considered.

**RESPONSE:** Costs in Table V-17 for the 200- and 400-year alternatives do not include costs associated with creditable expenditures to date. Those found in the economics appendix do include these costs.

2101 If 100-Year (FEMA) without dam in Table IV-3 (Appendix) refers to the storage alternative, are costs "Downstream from American River" classified as "Natomas Area" costs? If not,



how can this alternative correspond to the Storage alternative in the report?

**RESPONSE:** The costs "Downstream from American River" do reflect natomas area costs.

## CULTURAL RESOURCES

1973 Rerouting of historically significant trails would destroy their historic value and would be a major cost to USBR and DPR.

**RESPONSE:** Historically significant trails could be periodically inundated by the Selected Plan. The effects of this inundation are discussed under "Impacts" in the cultural and paleontological resources chapter. At this time there are no plans to reroute any of the historic trails.

1975 According to BLM, many of the nationally significant natural features and approximately 24 historic sites would be periodically inundated by the 200-year dam. The number would be greater for 400-year.

1173 Twenty-five of the 32 natural and historical sites which make the North and Middle Forks eligible for NRA status would be drowned at least occasionally.

**RESPONSE:** The BLM NRA study actually indicates that 20 cultural and historical features are within the Auburn project segment (this is within the boundaries of the Bureau's multipurpose project) and 4 cultural and historical features are within the North Fork wild river segment (not part of the Corps' area of potential effect). The EIS more accurately reflects the numbers of sites which could be affected by inundation as 163 historic and 17 prehistoric features for the Selected Plan and 268 historic and 23 prehistoric for the 400-year (NED) plan. Mitigation for these impacts is discussed in Chapter 9 and Chapter 22 of the EIS/EIR.

2089 Impacts of the TSP and 200-year alternative on cultural resources, especially along the Middle Fork where gravel for the dam will be mined and the Highway 49 realignment, are expected to be significant.

**RESPONSE:** Gravel extraction from the historic mine tailings is no longer being considered. Visual impacts from the realignment of Highway 49 to a new location near a historic bridge may be significant and unavoidable. Measures will be taken to avoid historic and prehistoric archeological sites during the design of the new Highway 49 alignment.

2228 Of the 20 prehistoric sites identified on the lower American

River, how many would be affected by construction activities during modification of levees if the levees were strengthened to accommodate 130,000 cfs?

**RESPONSE:** This information cannot be determined without additional field investigations. Since the Selected Plan does not propose work on the lower American River, there will not be any impact on the sites in that location.

2128 The lower Middle Fork is a continuum of historical sites. If Malakoff Diggins qualifies as a State Park because of its historical significance and change to the landscape due to mining, the lower Middle Fork should not have lower status. What mitigation is possible for an area of this historical significance?

**RESPONSE;** There are 99 historic mining sites within the study area along the lower American River. Many of these, such as the historic gravel bars, will not be impacted by temporary inundation. Others will be mitigated under terms of the Programmatic Agreement. The California Department of Parks and Recreation and the State Parks Commission are responsible for identifying those historic sites in California which are suitable for acquisition as State parks.

2227 Describe the additional studies planned, if any, other than the review to be conducted pursuant to the Programmatic Agreement.

**RESPONSE:** Additional studies include archival research and intensive field surveys, mapping and recording of historic and prehistoric sites, and evaluation of all sites for the National Register of Historic Places. Once the sites have been evaluated, a Historic Preservation Treatment Plan(s) will be developed. The procedure for accomplishing this is described in the Programmatic Agreement, presented in Appendix F.

2228 Please describe the opportunities that will be provided for public review of any subsequently developed information concerning cultural resources.

**RESPONSE:** Stipulation 6 of the Programmatic Agreement requires that the Corps distribute copies of the agreement to "persons and organizations likely to be interested in the management of cultural resources that may be affected by the Project". Individuals and organizations may at that time request to receive notification of

the availability of inventory, evaluation and treatment reports. These reports, or portions thereof, will be made available within the limits of site confidentiality requirements.

2228 Describe the procedure to be used in evaluating the Fremont Weir for the National Register. Will this evaluation be covered by the Programmatic Agreement?

RESPONSE: Modifications to the Fremont Weir are no longer part of this study. If the proposed work on the Weir had remained a project feature, the Weir would have been evaluated using the Secretary of the Interior's Standards and Guidelines for Evaluation of sites for National Register eligibility (Federal Register Volume 48 #190) and which are required in the Programmatic Agreement for the evaluation of all affected sites. See also stipulation 3 of the Programmatic Agreement.

1975 BLM also states that historic sites with substantial structural remains such as the No Hands Bridge [aka Mountain Quarries Bridge] and Grizzly Bear road house would suffer adverse effects from water level fluctuations and fast currents.

RESPONSE: The No Hands Bridge has been periodically inundated by previous floods in 1964, 1982, and 1986. At an approximate elevation of 600 feet, it could continue to be inundated by flood control storage. According to the DPR Regional Archeologist, there has been little if any damage to the bridge from prior flood inundation. The Grizzly Bear House (elevation 1,600 feet) would not be affected by water-level fluctuations.

729 This dam would insure that we could kiss our precious resources, archeological sites, presettlement and gold rush era sites goodbye.

802 The river and its banks are important. Historically they have played a huge part in California history. It should not be dammed.

863 I am concerned that building this dam would damage our Native American lands.

1084 There are many Indian and U. S. historic places in the canyon that should be preserved.

1175 Margaret Sanborn, a foremost western historian of our time,

thinks the American River is a truly historic river of the world that has shaped our society and human beings. I'm sure she feels that the undeveloped portions of the American River should remain that way.

1208 Admitted degradation of cultural resources will significantly lessen the opportunity for individuals to experience the past. This dam will negatively affect one of the most pristine and significant areas of cultural resources in California.

1389 A dam should not be built because the canyons have a lot of historical things like evidence of Maidu tribes living there and the 49ers panned for gold in the river.

2045 The dam would destroy Indian sites and other historic sites.

2024 Historic and gold mining sites will be lost if the dam is built.

**RESPONSE:** Chapter 9, Cultural and Paleontological Resources, of the EIS/EIR describes baseline conditions and impacts to historic and prehistoric cultural resources.

2177 The canyon is the site of the Sutter Mill gold discovery area; too much important history has taken place here to bury it under 100 feet of water.

**RESPONSE:** The gold discovery site was actually on the South Fork of the American River and is not within the area of potential effect for any of the alternatives which were considered by the Corps. A discussion of other significant historic mining sites can be found in Chapter 9, Cultural and Paleontological Resources, of the EIS/EIR.

1952 EIR says cultural resources may be adversely affected. But should say how? To what extent?

**RESPONSE:** Criteria for determining the project effect on cultural resources are defined in regulations implementing Section 106 of the National Historic Preservation Act. This is explained in greater detail in Chapter 9, Cultural and Paleontological Resources, of the EIS/EIR.

2190 The report suggests that it is better for the cultural resources behind Folsom Dam to remain flooded than exposed and studied. Is this Corps policy?

**RESPONSE:** Numerous studies have been conducted by the Corps, the National Park Service and other federal agencies on the effects of inundation on archeological sites. In general, those sites which are permanently inundated are subject to fewer damaging effects than those sites within the fluctuation zone. In addition, those sites at Folsom which are periodically exposed have been looted by illegal collectors and run over by off-highway vehicles. It has been very difficult for the Bureau and DPR to protect the exposed sites. Protection of the sites does not necessarily preclude their study.

1208 The proposed mining of gravel bars eliminates a largely historic feature. This prime cultural resource is being used without any discussion of its value, all to make the cost-benefit ratio work for your plan.

**RESPONSE:** The historic gravel mining bars are discussed in Chapter 9 of the EIS, Cultural and Paleontological Resources.

2250 Document states several times that insufficient knowledge has been gathered to meet the requirements of NEPA/CEQA. Without this information it is not possible to compare impacts of alternatives or compare costs.

**RESPONSE:** The Cultural and Paleontological Resources Chapter of the EIS (Chapter 9) describes the baseline conditions, the range and types of sites which may be impacted, and the procedures for mitigating impacts in accordance with federal historic preservation laws. Additional studies which will be prepared during the project design phase are described in the Programmatic Agreement presented in Appendix F.

2160 The DEIS is deficient in that there is no real determination of mitigation cost or actual damages to the resource. Who decided that the mitigation costs will be limited to 1 percent of the total project cost?

**RESPONSE:** Section 7 of the Archeological and Historic Preservation Act (16 U.S.C. 469-469c) provides that up to 1 percent of the total amount authorized to be appropriated for a project may be made available for cultural resources mitigation. Additional funds may be requested as described in Chapter 9 of the EIS/EIR, Cultural and Paleontological Resources.

- 1826 The DEIS states that historic properties will not be fully identified or mitigation measures disclosed before the FEIS. This is another violation of CEQA.
- 1208 Other roads and trails in the area have not been adequately researched to determine their significance. The DEIS fails to address the effects on individual resources so that public comment is rendered impossible. Decision-making is hampered by lack of knowledge regarding impacts that may or may not be mitigated.
- 1209 A MOA or PA with the SHPO/ACHP without addressing the quality, quantity, and overall significance of cultural resources is ridiculous, and unacceptable. The inventories must be resurveyed, National Register eligibility studied, and public comment solicited.
- 1930 Identification of historic properties within the study area  
1943 which will be affected will not be completed before issuance of final EIS/EIR. CEQA requires full disclosure in EIR. Violation of CEQA.
- 1935 Cultural resources affected by the project must be disclosed in the EIR, according to CEQA. However your report states they will not be identified until the final EIS/EIR. This is in violation of CEQA since it needs to be circulated for comment and review in order that mitigation may be planned.
- 2098 We object to suggestions that the cultural impact assessment and proposed mitigation be deferred beyond the feasibility stage. Only if the true cultural impacts are known, as well as other impacts, can the Corps and other decision-makers intelligently decide whether a given project deserves the finding of "feasible".
- 2186 The report states that identification of historic properties in the study area will not be completed before issuance of the final EIS/EIR. This deprives the public of any opportunity to comment on this issue in violation of NEPA and CEQA.
- 2229 Delaying identification of historic properties until after the FEIS/FEIR is a violation of CEQA and NEPA. Because the Programmatic Agreement is, in effect, the mitigation for the impacts, it should also be included in the environmental documents.

**RESPONSE:** A discussion of compliance with federal and State laws can be found in Chapter 23 of the EIS/EIR. Cultural resources information, based on surveys undertaken for the Bureau of Reclamation's multipurpose dam, and other inventories provide an adequate baseline from which to compare impacts of the various alternatives. The numbers and types of cultural properties have

been listed and described. A copy of the Programmatic Agreement can be found in Appendix F, Cultural and Paleontological Resources.

2098 We express a concern for the Corps' proposal to deal with the Section 106 review by way of a programmatic memorandum of agreement with the Advisory Council and the State Historic Preservation Officer.

RESPONSE: In accordance with Section 106 of the National Historic Preservation Act, once it has been determined that an adverse effect (significant impact) would occur, consultation with the Advisory Council and State Historic Preservation Officer is expected to result in a Memorandum of Agreement or Programmatic Agreement which outlines measures agreed upon that the agency will take to reduce, avoid or mitigate the adverse effect. This Programmatic Agreement is presented in Appendix F.

2229 Please provide a status report on development of the Programmatic Agreement. It appears intended to cover only historic sites.

RESPONSE: A copy of the Programmatic Agreement can be found in Appendix F, Cultural and Paleontological Resources. The agreement covers both historic and prehistoric resources. Federal preservation terminology is frequently confusing since the terms "historic properties" and "historic preservation" encompass districts, sites, buildings, structures and objects of historical, archeological, architectural, engineering and cultural significance.

2098 We are unable to review the proposed Programmatic Agreement because the cultural resources chapter and appendix refer the reader to each other for further information.

RESPONSE: The cultural resources Programmatic Agreement was inadvertently omitted from the DEIS. A copy of the agreement is included in Appendix F, Cultural and Paleontological Resources.

2228 Describe any evidence documenting the magnitude or extent of impacts to cultural resources that would be expected under the no-action alternative.

RESPONSE: This discussion is contained in Chapter 9, Cultural and Paleontological Resources, of the EIS/EIR.



2228 Describe the procedures or mitigation measures which will be used to ensure that such impacts due to construction of access roads and selection of borrow areas will be avoided.

**RESPONSE:** The access roads and borrow areas will be included in the cultural resources inventory of the project area. These will not be placed, unless there is no practical alternative, in areas where impacts to cultural resources would occur. If sites cannot be avoided, they will be treated in accordance with the Historic Property Treatment Plan described in the Programmatic Agreement (see Appendix F).

2229 Please describe mitigation that will be implemented for prehistoric sites. Will an archeologist be retained during project implementation to oversee retrieval and/or archiving of prehistoric resources?

**RESPONSE:** Mitigation for prehistoric sites is normally accomplished by means of data recovery; that is, scientifically based archeological excavations undertaken to answer specific research questions. All ground-disturbing work is coordinated with appropriate Native American tribal groups. Stipulation 8 of the Programmatic Agreement (see Appendix F) discusses professional qualifications and requirements for agency staffing. Curation of materials is described in Stipulation 7 of the agreement.

2133 The degree of impacts to cultural sites was not discussed in adequate detail.

**RESPONSE:** Please refer to the revised discussion of impacts in Chapter 9, Cultural and Paleontological Resources, of the EIS/EIR.

2251 Mountain Quarries Bridge constructed in 1911 is eligible for National Register at the national level. May be impacted by relocation of Highway 49.

1209 The Mountain Quarries Bridge is eligible for the National Register on the national level and listed in the Historic Civil Engineering Landmarks of Northern California as an early rare example of reinforced concrete in a railroad bridge. Your report suggests an alignment of Highway 49 that puts the abutment of the new bridge directly on this historic bridge. Even inclusion of a modern span in the viewshed is unacceptable by Secretary of Interior standards.

2098 National Register eligibility determination of the No Hands Bridge must be accomplished so that the Corps will know the cultural values at stake in their project, and to be able to fulfill its obligations under Section 106 of the National Historic Preservation Act.

**RESPONSE:** The bridge has not been determined eligible for the National Register. See further discussion in Chapter 9, Cultural and Paleontological Resources.

1994 Clarify that discussion of cultural resources on page 10-2 pertains to Natomas basin as a whole. The statement that the levees along the Sacramento River are considered to have a high potential for additional cultural resources needs some citation authority to support this proposition. Construction of the levees during the late 1800s and early 1900s does not necessarily indicate they contain any potential archeological sites or other types of cultural resources.

**RESPONSE:** Discussion of baseline conditions is now limited only to the study alternatives. Further discussion is contained in Chapter 9, Cultural and Paleontological Resources.

1994 Disagrees with indirect impact discussion for TSP. Page 10-5. Says these are continuation of existing activities, not indirect impacts.

**RESPONSE:** The statement is correct; however, the ongoing indirect impacts are likely to be exacerbated by the project.

1994 Need more elaboration concerning impacts of 150-year alternative in Natomas. Page 10-6 says additional impacts likely to occur within Sacramento River, Garden Highway but cites no authority and fails to discuss what those impacts would be.

**RESPONSE:** Impacts for the 150-year alternative are discussed in Chapter 9, Cultural and Paleontological Resources. The additional impacts referred to in the DEIS for the Sacramento River, Garden Highway area are impacts to known prehistoric archeological sites in those areas.

1208 A portion of the Western States Trail has been declared eligible for the National Register.

**RESPONSE:** The portion of the trail included in the pending nomination is entirely outside of the EIS area of potential effect. Chapter 9, Cultural and Paleontological Resources, discusses this topic in detail.

1210 No mention of the extent or quality of the resurvey work, as recommended by SHPO, is identified.

**RESPONSE:** Future work will be completed in accordance with terms of a Programmatic Agreement (see Appendix F) between the Corps, Bureau of Reclamation, State Historic Preservation Officer, Advisory Council on Historic Preservation and the nonfederal sponsor.

1833 The historical site survey has not been completed or included in detail.

**RESPONSE:** An intensive site survey was undertaken for the majority of lands included in the Bureau of Reclamation's multipurpose dam. Other smaller surveys and literature searches have also been completed. These provide a detailed picture of the historic and prehistoric resources within the area of potential effect. Please refer to Chapter 9 of the EIS/EIR and Appendix F for additional detail.

2133 Since sites have apparently been identified, a map overlaid with project components would have been helpful.

**RESPONSE:** Cultural and paleontological resource locations are protected by federal law and are not included in documents prepared for distribution.

2137 It is not sufficient to defer discussion of mitigation measures to a future "Programmatic Agreement" between federal and local sponsors. A listing of specific measures along with substantive recommendations should have been included.

**RESPONSE:** Please refer to the discussion of mitigation measures in Chapter 9, Cultural and Paleontological Resources, of the EIS/EIR.

2088 Report cites the UCD survey for the USBR multipurpose dam as a source of 2089 information. 1,589 historic and 125

prehistoric cultural sites could be impacted by a multipurpose dam. Most of these sites are from the gold mining period and are in the canyon upstream of the dam site. Impacts of your project are expected to be significant.

2089 DPR expects a management plan to include formal recording of all historic sites affected by the project and a determination if they qualify for classification as a historic mining district under National Register criteria. Mitigation should include protection of offsite cultural resources which are similar in nature and importance to those destroyed. DPR has a number of projects that could qualify for recommended cultural resource mitigation.

**RESPONSE:** The inventory, evaluation, preservation and mitigation of historic and prehistoric sites will be accomplished in accordance with the stipulations of the Programmatic Agreement. Permanent preservation of comparable sites as mitigation for those which will be destroyed will be considered in the development of the Historic Property Treatment Plan.

1208 Although in existence for only 15 years, there is precedence for establishing the Western States Endurance Run as a historic event, which itself could be eligible for the National Register.

**RESPONSE:** An event does not meet National Register criteria. National Register eligible properties include districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association, and that are associated with one of four criteria. Criteria A includes events that have made a significant contribution to the broad patterns of our history. However, there is no category for event itself to qualify for the National Register.

## ECONOMIC

601 Common Comment #3: Placer and El Dorado Counties do not  
1867 derive benefits from a dry dam.  
1877

1888 The main benefit to El Dorado County would be a huge debt.

1769 The proposal by the Corps offers no benefits to the residents  
of Placer County.

1860 The proposal by the Corps offers no benefits to the residents  
of Placer County.

19 A flood control only dam does not benefit the counties in  
which the project is located. Placer and El Dorado counties  
would be unjustly exploited.

RESPONSE: Residents of Placer and El Dorado Counties who work in  
Sacramento benefit indirectly from the proposed project. These  
residents would be commuters who travel daily to Sacramento for  
employment. These benefits were not estimated and are not  
considered a direct benefit in accordance with Corps of Engineers  
planning and policy guidance. However, a detailed description of  
the benefits directly attributed to the proposed project is  
explained in the Economics Appendix. These benefits are primarily  
for the reduction of flood damages in the Sacramento Metropolitan  
Area.

44 The 27,000 structures that are in the 400-year floodplain but  
are not in the 100-year floodplain have an average replacement  
cost of \$496,207. What are these amazing structures?

RESPONSE: There was a typographical error on page III-20 of the  
Main Report. There are 114,000 structures in the 100-year  
floodplain. The use of an average as a quantitative measure of  
structural value is misleading. It is recommended that this method  
not be used since the size and value of residential, commercial,  
industrial, and public structures vary greatly in the floodplain.

446 Developers are major beneficiaries of flood control. As a  
taxpayer, I do not want to subsidize flood control for  
Sacramento developers.

252 Economic development appears to reflect the preferences of  
development interest who have no scruples about destroying  
resources like the American River. It sounds like an attempt

to proceed with development in the floodplain.

826 The seemingly endless illusory benefits might be reaped by zealous developers but it is not sufficient reason to build a dam.

**RESPONSE:** Table III-5 in the Economics Appendix shows the number of structures that are beneficiaries of the proposed flood control project. For example, 167,812 structures in 1989 would have been beneficiaries of the proposed project. By the first year of project life (year 2000), 188,845 structures are beneficiaries of the project. This increase in structures reflects the growth projected under existing general plans for the City and County of Sacramento. Since these general plans do not forecast growth beyond 2010, development was held constant as of this date. As a result, new development accounts for only a small portion of the structures benefitted by the project.

683 This dam would have questionable economic benefits.

558 The benefits of this project are too little.

**RESPONSE:** The benefits have been estimated in accordance with policy and planning guidance for conducting civil works projects by the Corps of Engineers.

2075 Requests update of Plate 16, Plan Optimization, to reflect reasonable project costs and net benefits, maximum protection costs and net benefits for Auburn Dam calculation should be reviewed by impartial governmental agency (i.e., GAO). Earthquake and environmental harm should be included in the benefit-to-cost calculations.

2205 What is the real cost benefit trade-off when costs of widening are compared against Parkway values gained and reduced need for additional floodflow facilities? Where is this analysis and information?

**RESPONSE:** Chapter IV, Optimization, of Appendix C, Economics, explains the process used to identify the optimal plan (NED plan). Table V-1, Summary of Initial Alternatives Formulated, and Table VII-1, Pertinent Data-Tentatively Selected Plan, show pertinent cost information on project costs. These cost estimates for project alternatives included costs associated with a dam design which incorporates seismic safety and costs associated with mitigation of environmental impacts.

- 5 The dam is economically unsound because lower cost alternatives exist.
- 16 Beyond the environmental consequences, the costs of this facility outweigh the benefits. There are cheaper ways to obtain the desired benefits.
- 560 The project is ridiculous because costs far exceed benefits.
- 581 I think the costs of the dam far outweigh the potential benefits of the project.
- 591 The dam would require a great expenditure of tax dollars for questionable results.
- 686 Economic and ecological costs far outweigh potential benefits. This project wastes the taxpayers' money.
- 692 There is no economic justification for a dam on the American River.
- 815 I am not certain the marginal benefits justify the high cost of this project.
- 1106 The cost-benefit ratio does not include indirect costs to the State, local county governments, or California residents.
- 1159 The benefits from this dam are not worth the money and effort.
- 1216 The costs outweigh the benefits of damage protection.

**RESPONSE:** The benefits have been estimated in accordance with policy and planning guidance for conducting civil works projects by the Corps of Engineers. The benefits have been determined using National Economic Development criteria. The benefits relate primarily to inundation reduction where flood damages to structures, which would otherwise occur without the project, are reduced under "with" project conditions. Appendix C, Economics, American River Watershed Investigation Feasibility Report, explains the procedures used in determining average annual benefits. Chapter IV, Optimization, of Appendix C shows the benefits, costs, and net benefits for several alternatives. Alternatives having benefits that are greater than costs are considered to be economically viable.

- 14 In analyzing costs, you have omitted an estimate for the wildlife habitat mitigation that will be required according to FWS. If the federal government is required to purchase over 100 acres of land, your economic analysis will be wrong.

- 556 The project does not take into account all of the costs. You need an objective cost-benefit analysis. A higher value should be placed on wildlife preservation.
- 706 The value of the environment destroyed should be considered as part of the cost of any flood control project.
- 889 How can any cost/benefit analysis show this to be the best choice considering the probability of a 400-year flood occurring vs the alternatives available.

RESPONSE: The federal objective of water and related land resources planning is to contribute to national economic development (NED) consistent with protecting the nation's environment. This is accomplished pursuant to national environmental statutes, applicable executive orders, and other federal planning requirements. Contributions to NED are increases in the net value of the national output of goods and services. The measurement standard for the value of goods and services is the willingness of users to pay for each increment of output from a plan. For the American River Study, the problems and opportunities associated with the federal objective were identified and various alternatives were formulated to reduce urban flood damage. Average annual benefits and costs are estimated for each project alternative. Using the optimization process, the project alternative with the greatest net economic benefits consistent with protecting the Nation's environment is the NED plan. For the American River Study, the NED plan is that alternative that offers 400-year level of flood protection. The Selected Plan is a close second to the 400-year plan in the NED analysis.

- 56 The canyons that would be inundated have value that goes far beyond simple quantitative formulas.
- 448 Economic benefits as well as amenities associated with the river are preferable to the immense expenditures for flood control.
- 463 The short-term values are not acceptable as they compromise the quality of life and our future survival.
- 1814 The first priority must be to protect the 390,000 people and the \$36 billion worth of property in the floodplain.

RESPONSE: The Selected Plan's only purpose is flood control. Water would only be impounded behind the dam above the river scour zone for short periods of time on an intermittent basis. These periods during which floodflows would be temporarily detained will occur during the winter rain periods when recreation is not generally taking place in the American River canyon; thus impacts



on recreational use of the River should be small. The environmental studies also confirmed that the vegetation and wildlife in the canyon likely to be damaged by periodic inundation would be fully compensated through acquisition and management of lands along the South Fork of the American River. Consequently, the Selected Plan secures the level of flood protection needed while appropriately mitigating for environmental impacts in the canyons. Please refer to Chapter 7 of the EIS and to Appendix Q for a more detailed discussion of impacts on the canyon.

982 This project will not provide any obvious benefits such as hydropower.

**RESPONSE:** The Selected Plan is a single-purpose flood control dam. Several flood detention dam projects with features purposely included to more easily allow future expansion to a multipurpose project were evaluated in the feasibility study. However, an economic analysis of these features showed that it would be less costly to add them later if and when a decision is made to expand the flood control facility. Consequently, these "advanced features" were deleted from further evaluation.

1106 I question the NED point on your graph and I do not think you did a 300-year study. Is the graph going up or down at 300 years? The NED might be on the down side and beyond your optimal location.

1659 Statement discussing development of alternatives that maximizes NED benefits is in sharp contrast with planning objectives which appears to only maximize flood control benefits.

1878 The way the NED was put together, no matter what you came up with, bigger is better given the way of measuring it.

1660 The TSP fails as the alternative with the highest net benefits because your Table V-17 indicates that a larger project would yield larger benefits. This is a reasonable alternative that the Corps has ignored. The Corps should study alternatives large enough to determine the true NED plan.

**RESPONSE:** Optimization is defined as the process to identify the plan that reasonably maximizes net NED benefits. Net benefits are derived for the alternative plans by subtracting the average annual costs from the average annual benefits. The NED plan is that plan with the greatest net benefits. The alternative with the greatest annual benefits is not necessarily the NED plan. Chapter IV, Optimization, of Appendix C, Economics, to the American River

**Watershed Feasibility Report, discusses the optimization process that results in the selection of the NED plan.**

709 400-year flood protection is a very expensive answer without benefit of an economic water source.

1659 Discussion on comparison of alternatives and TSP ignores benefits of a multipurpose storage facility. Federal principles and guidelines require this of the Corps of Engineers in determining the NED plan. Since this is not done, the report is flawed. Because the multipurpose benefits are not included, it is unclear if the TSP is, in fact, the NED plan.

1660 TSP is not the NED plan. Therefore, it requires an exemption to be granted by the Assistant Secretary of the Army, Civil Works, in order to be implemented.

1876 We feel the \$800 million plus the announced funding from other sources for a M-P dam would be in the best interest of our economics.

**RESPONSE:** The authorization for the feasibility study directed the Corps to assume that the multipurpose Auburn Dam project would not be constructed as authorized. The Corps was directed to focus on flood control and incidental related purposes including water supply within the American River Basin. Appendix B of the Main Report provides an explanation as to how water supply increments were considered as project features as part of the early plan formulation alternatives. However, because a nonfederal sponsor was not identified to pay for the additional construction costs associated with water supply features, incidental water supply and hydropower were not developed as potential project features.

Alternatives providing either larger or smaller levels of flood protection than the NED plan can be selected if there are certain overriding reasons for doing so. Affordability and acceptability are valid reasons for selecting a less costly plan. The nonfederal sponsor has indicated that it will support a flood control plan that provides 200-year level of flood protection. The Corps has indicated its willingness to support a smaller project provided an exception to the NED plan is granted by the Assistant Secretary of the Army, Civil Works.

1660 The table summarizing Average Annual Benefits is flawed because it does not include benefits associated with the multipurpose dam.

**RESPONSE:** Please refer to the response to Comment #1659 in the preceding paragraph. The estimation of project benefits as shown in the summary table is consistent with the authorization included in Chapter II of the Main Report. Early in the plan formulation process, however, a number of potential measures relating to other water resource needs in the American River Basin were identified. These measures are discussed in Chapter VIII of the Main Report and include three local benefit options. These measures were deleted from further consideration.

1810 The first priority must be to protect the 390,000 people and  
1814 the \$36 billion worth of property in the floodplain.

**RESPONSE:** Comment noted.

1839 The DEIS should describe whether the B/C analysis was based on existing conditions or buildout. Inclusion of benefits for future development isn't justified unless future development is evaluated in the impact analysis. Indicate whether annual costs are incorporated.

**RESPONSE:** The economic analysis is described in Chapter VII of the Main Report and in Appendix C. This information is included in the EIS by reference. The economic analysis considered both existing and future development in estimating average annual benefits. Future development was in agreement with adopted City and County general plans. These general plans do not project future development beyond 2010. As a consequence, economic benefits were not claimed for development beyond 2010. The environmental analysis, on the other hand, does contemplate growth scenarios extending beyond the projections contained in existing plans (see discussion in Chapter 4 of the EIS/EIR).

2154 Although most insurance policies provide coverage for contents at 50 percent of the coverage on a home, the actual replacement value of contents is usually much less than 50 percent of the value of a home. The correct method is to obtain a sample of claim settlements to better determine the content/structure ratio.

**RESPONSE:** Consultation with local insurance companies indicated that the value of most policies covering the contents is between 50 percent and 75 percent of the value of the residence. Ongoing studies at the Institute of Water Resources, Corps of Engineers, are evaluating the content value as a percentage of the residential structure value. Some preliminary conclusions are expected this

year. However, in the meantime, Corps of Engineers' policy is to assume that the value of residential contents is 50 percent of the value of the structure.

2154 Land prices in the area for the with-plan condition are likely overstated. Land prices would fall if the amount of land eligible for building outside the 100-year floodplain was to be expanded at one time. Reductions in State expenditures and employment and the closing of military bases in the area will also dampen demand for housing and commercial sites, placing downward pressure on land activity will also reduce the amount and size of future structures below that estimated in the report.

RESPONSE: The values of structures in the floodplain are estimated at replacement cost less depreciation. These values were determined by personal interviews, telephone conversations, Sacramento Area Council of Governments (SACOG) data, realtors and the Marshall & Swift appraisal handbook. Future projections of structures and land use are in agreement with City and County general plans. The value of future structures was not projected over time. The value of existing structures was used to determine the values of future structures.

2154 Our review of completed Corps of Engineers' projects includes many where the benefits are far less, and the costs far greater, than estimated in the feasibility report. If federal funding does not permit a fast construction schedule, interest during construction increases and the present value of future benefits falls. Sensitivity analysis of such a likelihood for this controversial project, and for other contingencies should be prepared and displayed in the revised draft feasibility report.

RESPONSE: Interest during construction (IDC) is the opportunity cost of the federal government for allocating funds for this particular project when these monies could have been spent for some other purpose. IDC is added to construction costs to determine investment cost. Average annual costs are based on investment cost which include IDC. For the American River Project, the construction time requirements are believed to be realistic. A section has been added to Chapter VIII describing the impacts of a lengthened construction period upon the annual costs of the proposed project.

2155 The report estimates the net annualized benefits of the 150-

year protection plan (no Auburn dam) to be \$81 million and the net annualized benefits of the 400-year protection plan (the 894,000-acre-foot Auburn Dam) to be between \$130 million and \$140 million. (Tables IV-10 and IV-11, pages C-55-6) A more extensive sensitivity analysis involving several factors should be prepared. These factors might include changes in flow-inundation and depth-damage relationships, land values, costs of replacement resources at Folsom and other upstream dams, probability of levee failure, timing of construction, etc.

**RESPONSE:** Appendix C, Economics, discusses the assumptions made in the economic evaluation. The economic evaluation was completed in accordance with guidance for civil works planning studies by the Corps of Engineers.

2171 The benefits derived for the project should account for the flooding that would result if Morrison or Magpie Creeks overflowed. Neither Morrison nor Magpie Creek is capable of handling a 100-year event. The report also is not clear as to what preproject conditions are assumed for Magpie or Morrison Creek. These preproject conditions should be explained.

**RESPONSE:** The preproject condition for the American River Watershed Investigation assumed that flood protection on Morrison Creek would be improved by local interests to the same level of flood protection as would be provided on the American River. Average annual damages and benefits were not developed for Magpie Creek in the American River Watershed Investigation. The Corps of Engineers is currently studying Magpie Creek under Section 205 of the Continuing Authorities Program. The Main Report has been modified to clarify this condition.

1945 The project description does not discuss any general economic characteristics of the project.

**RESPONSE:** Pages 10-13 of the Executive Summary present summary cost and benefit data. Pages V-13 through V-16 discuss alternative selection. The economics of the Selected Plan are summarized on pages VII-15 through VII-19. The detailed economic analysis and data are presented in the Economic Appendix.

1839 Costs for several features of the TSP aren't part of the estimates for comparisons with other alternatives. These costs and the reason for their exclusion should be fully disclosed in the revised DEIS. Table 1 should be corrected.

**RESPONSE:** Table I, Summary of Alternatives, on page 11 (and repeated on page V-42 as Table V-17), presents the key features of the "no-action alternative" and the six alternatives which were selected from the 27 which were examined.

1839 Cost and benefits of recreation components should be evaluated separately from the project since they aren't part of the overall basic project purpose of flood protection.

**RESPONSE:** "The Federal Water Project Recreation Act of 1965 (Pub. L. 89-72) requires that full consideration be given to the opportunities that federal multipurpose and other water projects afford for outdoor recreation and associated fish and wildlife enhancement." (Economic and Environmental Principles and Guidelines for Water Related Land Resources Implementation Studies. p. 67)

The recreation component of the Selected Plan is the fulfillment of this requirement. The recreational needs are addressed on page VIII-9 under Water Resource Opportunities.

The costs and benefits associated with the recreation component are shown as line items allowing the reader to calculate the benefit-cost ratio without that component.

187 The loss of the forks of the American River is not worth the benefits derived from your plan.

224 The detrimental effects to the environment much outweigh any "supposed" flood control benefits.

456 Wildlife and free-flowing rivers are more important than the benefits you could gain from this huge project.

588 The small benefits of excess flood protection does not outweigh the enormous environmental cost. Even a simple cost/benefit analysis does not add up.

819 The environmental and recreational costs do not appear justified for the extra flood protection gained.

1156 The damage to the land is in excess of the project benefits.

1840 The environmental mitigation costs don't include land costs. All costs associated with the project must be included to determine project practicability.

1898 Auburn gets the loss of the beautiful river canyons and access to them and gets only uncertainty that there will be money

available to rebuild recreation areas and habitat after flooding.

**RESPONSE:** All adverse environmental impacts are described in the EIS/EIR. Costs of the project, including environmental mitigation costs, are included in the total project cost and displayed in Chapter VII, Selected Plan. Environmental costs associated with not implementing a flood control plan have been more clearly defined in Chapter VI of the Main Report. This chapter has been expanded to provide a clearer description of the environmental tradeoffs of the various plans, and also has been expanded to more clearly depict how the Selected Plan best meets all criteria to provide flood protection.

2151 The opportunity costs of reduced hydropower generation and water supply, 100 mils/kWh and \$300 per acre-foot respectively, have been overestimated. The cost of replacement resources for all alternatives involving reallocation of reservoir storage is overstated.

2151 The \$350-\$750 million cost of using storage space in upstream reservoirs was also overestimated in the report. The opportunity cost for hydropower is more likely to be one-tenth of that high range of estimates if the values were calculated based on lost head and volume with readily available formulas.

2151 The lost stream of revenues is also overstated because it was not discounted. When performing a reanalysis, Monte Carlo or other statistical techniques should be used to reduce or eliminate the opportunity cost for drought years.

2191 The analysis of the economic impact of Folsom reoperation is again inadequate and unsupported. When the CVP usually sells surplus water at less than \$10/AF, there is no basis for using \$300/AF as a replacement cost for the water supply. The Bureau of Reclamation has never been willing to admit that water from a multipurpose Auburn dam would be that high.

**RESPONSE:** There are various accepted methods for valuing an acre-foot of water: least costly alternative, net income, and willingness to pay, to name a few. The method, for projects such as those under consideration, for which the necessary information can be most readily obtained, is that of least costly alternative. Generally, alternatives to a given project have been studied and their costs have been estimated. Data for other methods are harder to obtain and often less reliable.

Input-output analysis, on the other hand, is used to analyze impacts on a modeled economy resulting from changes that are transmitted through interindustrial relationships. Given a change

in the input or output of a given industry, what is the effect on the rest of the modeled economy. If the California agricultural sector should decline 30 percent due to some factor, what would be the effect on other sectors? The California economy? The U. S. economy?

Input-output is not an appropriate tool for measuring the impacts of projects of the type under consideration. If a flood control alternative is built which reduces current water supply or power production, the effects on the economy are not clear-cut. The loss of an acre-foot of water supply does not necessarily translate into a job lost at a New England textile mill. The loss of an acre-foot of water may mean that an acre-foot will be produced elsewhere: it may result from conservation; an additional acre-foot of water may be pumped from ground water; a desalinization plant may be built; a reservoir at another site may be built; an acre of some marginal crop may be taken out of production or produced in Arkansas rather than California. The input-output model cannot capture these probable outcomes.

The alternative-cost method, on the other hand, constrains the value used to quantify project impacts by the least costly alternative means of producing or remedying those impacts. The alternative cost of \$300 per acre-foot for water supply says that to produce a quantity of water for urban and agricultural consumption equal to that quantity which would be shifted from water supply to flood control reservation in a particular alternative would cost \$300 per acre-foot. The same holds true for the valuation of the lost electrical generation capacity at the alternative cost of 100 mills/kWh.

Whether the USBR or others sell the water at or below its value is another issue which often arises in the political arena but is not applicable to the analysis for this project.

1806 Marginal costs of pursuing water and power options must be analyzed to determine if the flood control only dam really affords cost-neutrality. The statement that your project does not hinder nor preclude a M-P dam must be supportable.

RESPONSE: For a project to be cost-neutral, the costs of that project cannot include costs for any features other than those of the stated purposes. In the case of a flood control dam, cost-neutrality exists if the project costs are only those needed to provide the stated level of flood protection.

Earlier versions of flood control dams being considered for the Auburn site (the "Expandable Dam" with "Advanced Features") were not cost-neutral in that they contained features (and thus costs) which were not flood control-related. In cost allocation, the cost



of those features would be allocated to their respective purposes (water supply and power) regardless of who would actually pay for them. The current flood control alternatives do not contain nonflood control project features and, therefore, are cost-neutral.

The question of whether the sluices included in the design of the current flood control alternatives fail to meet this criteria has been raised. The choice of sluices versus a diversion tunnel was made for reasons of lower overall project costs when the outlet was designed to provide emergency closure for system safety considerations (as addressed Chapter 3 of Appendix N) rather than as an "advanced feature".

1209 Your plan does not offer to repair the existing B.O.R. site, despite moving your damsite downstream. Not recommending repairs does not create a true baseline for the canyon. Your cost-benefit ratio is altered in favor of the TSP by the exclusion of these repair costs.

RESPONSE: The "baseline" or "without-project" condition is that condition which will exist if no project is built. If none of the alternatives is built, the canyon will remain as it is today and, thus, the existing condition of the canyon is the true baseline. Therefore, benefit-cost ratios calculated for the alternatives (excluding costs of such restoration) are correct. If, however, it was mandated that with any alternative such restoration must be included, then it would be necessary to include this cost.

1839 An alternative which is more costly than another but still cost effective is practicable under Section 404(b)(1) guidelines. Although the NED plan may have the greatest net benefit, all other alternatives have positive B/C ratios.

RESPONSE: Only alternatives with positive B/C ratios were retained for final evaluation. The alternative which qualifies as the NED plan was the alternative that provided 400-year flood protection. However, consistent with the guidelines, a project, in this case the alternative which provides 200-year flood protection, was selected as the Selected Plan.

2188 Given that it is assumed that growth is restricted in the floodplain and it will occur elsewhere, the Corps should not be able to claim any economic development benefits from the proposed project. If the project proponents accept the growth assumption, the federal government must be based solely on protecting existing uses, not on providing an opportunity for

future development in the floodplain.

2191 The report indicates on page V-14 that there will be \$33 million in annual location benefits in the Natomas area as a result of the proposed flood control project making land in Natomas available for a new economic use. This magnitude of benefits to few owners of land should trigger special cost sharing under the windfall benefits provision of the P&G. Why is there no mention of windfall benefits?

1837 We urge the Corps to exclude future development benefits from the project benefit analysis because their inclusion expands the project purpose from one of flood protection of existing property to one of flood protection plus facilitation of future development.

**RESPONSE:** The benefits have been estimated in accordance with policy and planning guidance for conducting civil works projects by the Corps of Engineers. This regulation, ER 1105-2-100, was published on December 28, 1990 and is used by all USACE commands having civil works responsibilities. Reference is made to Chapter 6, Section IV - NED Benefit Evaluation Procedures: Urban Flood Control. Future flood damages were estimated in accordance with this regulation. Changes in economic growth have impacts on future flood damages. Projections of future residential, commercial, industrial, and public structures are in agreement with city and county general plans which projected development through the year 2010. Future development was not estimated beyond this year. Appendix C, Economics, explains the various assumptions used in the evaluation. The Corps does not feel that this expands the project purpose.

247 You haven't adequately valued the American River as an irreplaceable natural resource in fixed supply when dedicated for wilderness purposes. Therefore, your analysis is incomplete, uneconomic, and unfair. Value the river and surrounding habitat as a common property resource, public good, and consider externalities on public lands and the relationship between river and flood-related valuations.

**RESPONSE:** The Water Resources Council's principles and guidelines were followed during the course of the study. The requirements of NEPA and CEQA were also adhered to, which incorporate natural resource values.

427 We must find a cost-effective way to manage the natural resources but through the sale of its water and energy, make such protection pay for itself.

247 If an analysis was made of the natural resource value of the pristine canyon destroyed by New Melones Reservoir, I request that a before-and-after analysis be provided for comparison here. Have the losses of natural resources and natural value been offset locally, regionally, etc.?

**RESPONSE:** The Corps' proposed project does not include any permanent storage of floodwater for water supply or power generation. For additional discussion, see comments and responses under the Multipurpose Dam Section of this Appendix.

2205 What would the economic and community/recreational resource value benefits that may be derived from the enlargement of the Parkway be? How could the additional lands incorporated be treated to enhance vegetation habitat resources values and contribute to the mitigation needs of the region? How could local interests enhance the now Parkway without the cost of enhancement being associated with the widening actions?

**RESPONSE:** Appendix H, Recreation Resources Appendix, documents the recreations studies conducted for the proposed project. The Federal Water Project Recreation Act of 1965 provides for recreation to be considered as a full project purpose of federal water resources projects. However, a nonfederal sponsor must participate in the study and construction of the recreation facilities and assume all operation and maintenance responsibilities of the completed project. After discussions with state and local agencies having the potential for participating in the recreation development, Sacramento County and the City of Sacramento expressed an interest in sponsoring recreation. The projects recommended by the County and the City were included as part of the recommended flood control project.

2198 While the report is characterized by an emphasis on economic consideration suited to select the NED alternative, this approach is not adequately responsive to NEPA and CEQA. A reasonable range of alternatives needs to be considered.

**RESPONSE:** A wide variety of flood control measures was considered to provide flood protection for the Sacramento area. The measures were combined in various ways into 27 alternatives. Based on environmental and economic considerations, the 27 was reduced to 6 for more detailed study. Each of the 6 alternatives was then evaluated on environmental considerations according to NEPA and CEQA. Please refer to Chapter VI, Plan Selection Process of the Feasibility Report, and Chapter 3, Alternatives of the EIS/EIR.

2133 It has been articulated in previous correspondence to the Corps of Engineers that Yolo County's position is that "hydraulic mitigation" is a project feature and, therefore, is to be financed and constructed with the project.

**RESPONSE:** Comment is referring to hydraulic mitigation consisting of lengthening the Fremont Weir and associated features. Lengthening the weir has been deleted from the Selected Plan. A supplemental feature consisting of a 3,000-acre-foot detention basin has been added in its place. This feature, and other hydraulic mitigation features, are considered a project feature with costs allocated accordingly.

2191 The inundation reduction analysis is flawed because it does not take into account the probability of flooding of the floodplain from the Sacramento River. There should be an analysis of the likelihood of flooding from internal sources. The report acknowledges residual flooding that will not be resolved by this project. Your project should not be credited with inundation reduction unless it is shown that the area protected from flooding from the American River will not be flooded from other sources.

**RESPONSE:** Please refer to the Economic Appendix (Appendix C) for a description of major levee break assumptions and the inundation reduction analysis. Levee breaks and resulting flooding from the Sacramento River is included in the analysis. Flooding caused by internal drainage is subtracted from the inundation reduction analysis. Reference Plates C-6 in the Economic Appendix for a delineation of residual floodplains in the 400-year Sacramento floodplain area.

1870 Criteria used by the Corps is inconsistent with the federal principles and guidelines, particularly the absence of an analysis of regional economic benefits and other social effects.

**RESPONSE:** The benefits have been estimated in accordance with policy and planning guidance for conducting civil works projects by the Corps of Engineers. This regulation, ER 1105-2-100, was published on 28 December 1990 and is used by all Corps of Engineers Commands having civil works responsibilities. This guidance requires the estimation of benefits using national economic development (NED) criteria. Information about benefits to the Sacramento region as well as social impacts in the region are presented throughout the main report and EIS/EIR.

2154 The benefits of many downstream and nonstructural measures

would be received nearly immediately and do not have to be discounted as heavily as would the benefits of the dry dam, which will take several years to build. It is unclear whether this factor has been taken into account in this analysis.

**RESPONSE:** The benefits were estimated for both existing and future levels of development. Reference is made to Appendix C, Table III-9 and Table III-11 where the year 1989 is representative of existing development. By subtracting the with-project damages of \$48.8 million (Table III-11) from the without-project damages of \$166.6 million (Table III-9), the inundation reduction benefits under existing development is \$117.5 million for the selected plan. Comparison of these project benefits to the project costs results in a benefit-to-cost ratio greater than 1.

Future development was obtained from city and county general plans which did not make projections beyond 2010. The average annual benefits shown in Table III-24 have been discounted and are representative of future development.

## **EDITORIAL**

2162 Appendix J, Chapter 1, Regional Geology - "largest earthquake recorded" should read "largest earthquake recorded along the Foothill Fault System".

**RESPONSE:** Concur. Text revised to indicate that the 1940 and 1975 earthquakes near Oroville were the largest on record in the Foothill Fault System.

2162 Appendix J, Chapter 2, Table J-2 - Gives erroneous impression that minimal additional investigation, grouting and slide removal will be needed at this site.

**RESPONSE:** No change required since the table reads that small slides will have to be removed or stabilized and that foundation grouting is required.

2162 Appendix J, Chapter 4, page J-24, Plate 3 - Construction Schedule Calendar has a typo; it should be River Mile 20.1 not 20.0.

**RESPONSE:** Concur. Correction made.

2163 Appendix J, Chapter 4, page 12 - Potential for expansion should be discussed using TSP, not 200-year scenario.

**RESPONSE:** The Selected Plan is now the 200-year alternative; therefore, no change is necessary.

2163 Appendix J, Chapter 4, page 11, paragraph 1 - Spillway dimension does not match Plate 18 in the Main Report.

**RESPONSE:** Concur. Text revised.

1853 DEIS, page 8-2, Tables 8-1, 8-2 - Both Tables should include the no-action alternative and Folsom reoperation impacts.

**RESPONSE:** The impacts associated with the Folsom reoperation study will be included in the Folsom Reoperation EIS. The Folsom reoperation study is not an approved project and may not be

implemented while the American River Watershed Project is being constructed. The no-action scenario associated with indirect impacts can be quantified by the use of existing approved local plans. Although there will be direct impacts associated with the no-action alternative such as increased habitat loss from continued flooding, they are not easily quantified. However, they are discussed in the Fish, Vegetation, and Wildlife Chapter, No-Action Section qualitatively and, therefore, not discussed in the table referred to in this comment.

1852 Page 8-3, Table 8-2 - Include indirect impacts associated with temporary inundation and potential increased erosion.

**RESPONSE:** Impacts associated with temporary inundation and increased erosion are considered operation impacts and are included in the direct impact figures. Impacts from dam construction, inundation, erosion, Highway 49 and Ponderosa Way relocation are separated in the discussion portion of direct impacts in the Fish, Vegetation, and Wildlife Chapter.

1990 Map on page 8-41 has unintelligible legend, 4 different types of habitat depicted by same diagonal lines.

**RESPONSE:** The map has been changed to reflect this comment.

1988 Last sentence on page 8-24 describing the TSP is unintelligible, phrase or two of sentence is missing.

1946 EIR fails to properly reference statements and conclusions.

**RESPONSE:** Comments noted.

2230 The maps in the Transportation Section should be revised to show the American River and the proposed dam location along with the transportation routes.

**RESPONSE:** Concur. Figure 12-4 revised to indicate the American River and location of the Highway 49 replacement.

1849 DEIS, Tables 1-2, 1-3, Impact Summary - Add the no-action alternative to these tables and include an estimate of existing short-term and long-term flood impacts to the

American River corridor that can be compared to potential impacts caused by project alternatives.

**RESPONSE:** Table 7-1 (previously 8-1) has been revised to include no-action alternative. Folsom reoperation is the 100-year storage plan shown on the table. Table 7-2 (previously 8-2) includes both no-action and 100-year storage plan. Short- and long-term impacts of the various alternatives are included in Chapter 20.

1951 Document makes claims of fact, but claims remain unqualified. Need to cite authority. Some numbers referred to appendices, most are not. Numbers or conclusions given without reference to study or table. If there is, there is no mention of specific study (i.e., page 2-9 "seismic studies indicate ...)

1949 Important information is fragmented between the Main Report and EIR. Inadequate references between the two documents exist. Reader's impression that information is nonexistent or analysis was not done. This is particularly apparent in the chapter on alternatives where there is no summary or reference to an economic cost comparison of alternatives.

**RESPONSE:** Specific references to source information have been added to the extent possible. The Main Report and supporting appendices are made a part of the EIS/EIR by reference. The reader is referred to the Main Report, Chapters III, IV, V, and VI, for a discussion of the flooding problem; planning objectives; plan formulation process (measures identification, alternatives analysis, and plan selection); selected plan; plan implementation process; major conclusions and recommendations; as well as other pertinent feasibility study information.

2182 The size of the document makes it difficult for reader to fully explore the impacts of the proposed project in a structured fashion. Perhaps a more structured organization, through improved communication among team members preparing the document, would eliminate some of the repetition of information.

2013 The large size of the document and technical appendices requires you to organize the document so that accessing the sections of interest can be handled efficiently. If proposed mitigation measures immediately follow the particular impact it addressed, the document would be far easier to use.

**RESPONSE:** The size of the document and resulting difficulty in easily understanding pertinent features or comparing impacts to mitigation is an unfortunate by-product of the project complexity.



**Please refer to the summary chapters of the Feasibility Report and EIS/EIR.**

1953 Appendices are massive. Perhaps too much information is contained. More information should be included in the Main Report or if it is located only in the appendices, it should be referenced more frequently.

**RESPONSE:** The size and complexity of the appendices is recognized. It is not believed that adding more information into the Main Report or EIS/EIR would facilitate understanding. More references to pertinent appendices have been added to the Main Report.

619 I am concerned that there is apparently a lack of adequate mapping of the entire watershed--especially south of Sheldon Road. Also, there should be larger, more detailed maps showing the delineation between wet and dry areas so homeowners can determine if they are within the floodplain.

**RESPONSE:** The Economic Appendix contains a large colored map of the floodplain. Beyond this, detailed maps are available within the Sacramento District Corps of Engineers' offices. The Sacramento Area Flood Control Agency (SAFCA) has detailed mapping of wet and dry areas used for cost apportionment purposes. They can be reached at (916) 440-7606.

97 I believe Figure 8-2 on page 8-14 is in error. It shows that there is a section of seasonal wetlands excising on property owned by Sutter Bay Associates. This area is not a seasonal wetlands (see enclosed map).

**RESPONSE:** A field inspection was conducted during the feasibility study to identify areas defined under Section 404 of the Clean Water Act as being wetlands. Areas shown on the map were determined to apparently consist of lands falling within the guidelines of the jurisdictional wetland.

1987 Page 6-13 - Heading of Tentatively Recommended Plan should be corrected to Tentatively Selected Plan. Page 6-14 reference to same should also be corrected.

**RESPONSE:** This text was revised to be specific to the Selected Plan.

2103 Page DEIS 6-4, Table 6-1 - The numbers shown in the columns do not match up with the correct parameters.

**RESPONSE:** Concur. This table has been revised to reflect this comment.

2115 Page DEIS 8-17, paragraph 5 - There appears to be some text missing here as the statement is confusing.

**RESPONSE:** Concur. The text has been revised to reflect this comment.

2171 DEIS 6-7, Lower American River, paragraph 2, second sentence - This sentence should read: In both these areas, local projects aimed at providing a higher level of flood protection are being planned. For Magpie Creek, the Corps of Engineers is conducting a study under their 205 authority. For Morrison Creek, the Corps is also conducting a study under their 205 authority.

2171 DEIS 6-7, Lower American River, paragraph 2, first sentence - This sentence should read: Drainage basins as noted... in Dry and Magpie Creek drainage basins...

2171 DEIS 17-19, Local Tributary Project, last sentence - This sentence should read: Local studies have been initiated to identify solutions to the flooding problem on the Morrison Creek Stream Group. Currently the Corps of Engineers is doing the study under their 205 authority. However, the preliminary cost will more likely justify a general investigation of Morrison Stream Group.

**RESPONSE:** This text was revised to include reference to Magpie Creek and current study efforts.

2163 Appendix J, Chapter 4, page 11, paragraph 1 - Spillway dimension does not match Plate 18 in Main Report.

**RESPONSE:** The purpose of Appendix J is to describe studies related to damsite selection. Much of the information in the Appendix related to specific designs and costs have been superseded. No change is warranted, since modifying the text to include current spillway design and related design parameters would not change results derived in the Appendix.

2172 DEIS 17-20, third paragraph - Elder Creek and Morrison Creek do not drain the same acreage. Neither do they run parallel. Elder Creek is a tributary of Morrison Creek.

**RESPONSE:** Concur. This text was revised.

1853 DEIS, page 8-3, Table 8-2 - Include indirect impacts associated with temporary inundation and potential increased erosion.

**RESPONSE:** Impacts which are associated with temporary inundation in the flood detention dam are considered as direct impacts and are summarized in Table 7-1 (previously 8-1). Text has been revised to more definitively describe potential soil instability impacts in the detention dam area. The flood detention dam would, on net, likely result in a lessening in erosion along the lower American River.

2000 In Chapter 21, discussion of the no-action alternative should reference earlier discussion concerning loss of life and dollar value of property damage from major flood events.

**RESPONSE:** Chapters III (Flood Problems) and VI (Plan Selection Process) describe impacts to development and loss of life from the no-action plan and various other alternatives considered.

2093 Nowhere in the entire 500 to 600 pages does it indicate how many miles of river would be inundated. It is hard to turn the information you did include into usable numbers. I had to go back to USBR studies to determine that the 400-year alternative would inundate 400 miles of the river and the 100-year alternative would inundate 30 miles. The central issue here is impact on the river and the most informative way to describe it is in miles inundated.

**RESPONSE:** Summary comparison of alternatives in the Main Report has been revised to include maximum area and streambed inundation for alternatives consisting of a flood detention dam near Auburn.

2011 Page 8-13, paragraph 1 - The list of important riparian sites in the Natomas Basin should include Bannon Slough.

**RESPONSE:** A reference to Bannon Slough as an important riparian

site has been included in the text.

2103 Page DEIS 8-10, paragraph 4, sentence 1 - In addition to the flood protection noted in this sentence, Folsom Reservoir, a multipurpose project, was constructed to provide benefits for water supply, water quality, fish and wildlife, hydroelectric power generation, and recreation.

**RESPONSE: Concur in part. The text has been revised to state that Folsom Reservoir was constructed for flood control, water supply for irrigation and municipal uses, and hydropower.**

2115 Page 8-18, paragraph 2 - The second sentence needs clarification. The 100-year levee and 100-year levee/storage alternatives would be similar in terms of the same types of impacts but different in amounts. There will be direct levee construction impacts in both alternatives but no storage-caused impacts would occur with the levee-only alternative.

**RESPONSE: Concur. The text has been revised to indicate relative impacts of the 100-year alternatives.**

2102 Page II-9, paragraph 4, sentence 4 - Reservoir releases are also controlled by released through the powerhouse.

**RESPONSE: Concur. A qualifying statement has been added which states that releases are primarily controlled by releases through the flood control sluices and radial gates.**

2145 Plate 23 cites the extension to Rio Linda Boulevard whereas it should read Marysville Boulevard. Rio Linda Boulevard is located downstream within the existing levee system. Marysville Boulevard was flooded over from the east and outflanked the North Arcade Creek levee at the Hagginwood park site during the 1986 flood.

**RESPONSE: Rio Linda Boulevard and Marysville Boulevard are labeled correctly on Plate 23 (now Plate 24). The conclusion in the report on flooding in the area is confirmed.**

2172 DEIS 17-10, Magpie Creek Diversion Channel Improvement

Project, first paragraph, fourth sentence - This sentence should read: The U. S. Army Corps of Engineering and the State Reclamation Board completed construction of the Magpie Creek Diversion Channel in 1956. The American River Flood Control District widened the channel in 1966. The Magpie Creek diversion Channel ... see letter.

**RESPONSE:** Concur. This text has been revised to indicate information on initial construction.

1853 DEIS, page 16-16 - Since this is the preferred alternative, EPA recommends the visual simulation of the 400-year alternative be included.

**RESPONSE:** Selected Plan refined to include the 200-year detention dam. Accordingly, photo representation is appropriate.

1852 DEIS, page 6-5 - For ease of comparison, include federal and State standards in Table 6-2.

**RESPONSE:** Concur. This table has been revised to include federal standards.

2115 Page DEIS 8-23, paragraph 1 - Additional discussion is needed here. The last sentence describes the FWS' without-project scenario as speculative and, therefore, not accepted by the Corps as acceptable. It should be explained that the Corps chose not to fund the studies the Service proposed on historical changes on the lower river (pre- and post-Folsom).

**RESPONSE:** Concur in part. Text revised to indicate that although the without-project scenario is speculative, some reduction in wildlife as well as fishery resources is expected in the future as more water is diverted for CVP uses. Other sections of the Feasibility Report have been revised to indicate without-project reductions and discussions of with-project scenarios have been revised to reflect estimate of net impacts. Results of studies on riverine conditions under pre- and post-Folsom Dam and Reservoir conditions would be speculative at best. It is felt that more definitive analytical environmental evaluations are a better approach.

2102 Page V-28, Table V-8; page V-30, Table V-10; page V-34, Table V-12 - Under the item "Reduced Recreation at Folsom...", the

mitigation is shown as "loss to Recreation Resources". It is unclear how a loss to recreation resources will mitigate for reduced recreation.

**RESPONSE:** Losses to recreation are not mitigated. This table has been revised to indicate same.

2106 Page XI-2, paragraph 6, and page XI-3, paragraph 2 - Paragraphs appear to be inconsistent. The first indicates transfer of land to the nonfederal sponsor for easements in the reservoir area and fee title for the damsite land. The second indicates transfer to the U. S. of all lands, easements, and right of ways. If federally maintained, damsite should remain under federal control.

**RESPONSE:** Concur. The conclusion has been changed to indicate that all federal lands will be retained although the nonfederal sponsor will pay fair market value for easement rights.

2198 Please revise the impacts discussion in each section of the DEIS/DEIR to quantify impacts, to qualitatively evaluate the significance of the potential impacts, and to suggest appropriate mitigation measures.

1952 Impacts should be ranked and more space devoted to more significant impacts.

**RESPONSE:** The EIS/EIR has been revised to provide more information on the significance of each impact. Discussions on potential impacts and recommended mitigation features for the Selected Plan have been greatly expanded. Also, refer to the summary impact tables at the end of EIS/EIR for a more refined explanation of relative impacts.

2146 Table 1: Summary of Alternatives, page 11 - Makes no mention of environmental damage from aggregate mining and loss of animal life due to inundation. These should have been listed under "Disadvantages".

**RESPONSE:** The source for aggregates to construct the detention dam has been revised to an offstream quarry site. The impacts of the alternative site have been evaluated and included in the EIS/EIR.

1851 Values for lengthening Fremont Weir and widening northern Yolo

Bypass do not appear consistent with other parts of the document (pages 3-5, 3-7, Table 1-1).

**RESPONSE:** Modifications to Fremont Weir and northern Yolo Bypass have been deleted from the Selected Plan.

2171 DEIS 17-19, Local Tributary Projects, sentence 2 - This sentence should read: The Morrison Creek Stream group, which is capable of flooding portions of south Sacramento and the Pocket area...

**RESPONSE:** Do not concur. Current language in the text is viewed appropriate. There is much question whether flooding from Morrison Creek can appreciably flood portions of the Pocket area.

2172 DEIS 17-21, second paragraph, last sentence - Delete starting with...without experiencing..., since a serious flood risk has and does exist to the current property owners.

**RESPONSE:** Concur. Text revised accordingly.

1988 Last sentence on page 8-24 describing TSP is unintelligible. "Data are not... operational scenario". Phrase or two is missing.

**RESPONSE:** Concur. This paragraph has been revised to describe likely impacts on the lower river channel from the Selected Plan.

1990 Map on page 8-41 has unintelligible legend. Four different types of habitat depicted by same diagonal lines.

**RESPONSE:** Concur. Figure revised for clarity.

2104 Page 9-3, paragraph 5 and page 9-13, paragraph 8 - Any impact, direct or indirect, on operations of the CVP could impact winter-run salmon. These paragraphs should reflect that possibility.

**RESPONSE:** Concur. Several sections of the EIS/EIR have been revised to indicate potential impacts to winter-run salmon.

- 2 Plate 23 note indicates existing north levee at Arcade Creek will be extended to "high ground at Rio Linda Boulevard". There is no high ground at Rio Linda. In fact, locals have extended the existing levee to Marysville Boulevard since the 1986 flood.

**RESPONSE:** Note to plate has been changed to read "high ground at Marysville Boulevard".

- 1953 Report doesn't define language used within (i.e., habitat unit) what is unit measure? Headings do not always indicate what follows (i.e., Local Acceptability on page 2-9). This section should describe areas of controversy, not state what local sponsors want and chance of flooding at varying flood protection levels.

**RESPONSE:** A habitat unit is a dimensionless number calculated based on expected impact. When mitigation features are formulated, they are designed to offset a portion or all of the habitat units of impact. Local acceptability is defined in the Main Report and used in a similar fashion in the EIS/EIR. Areas of controversy are covered in Chapter 1 of the EIS/EIR.

- 1851 The revised DEIS should note that FEMA doesn't utilize the Corps' methodology of using expected probability in determining flood frequency analysis.

**RESPONSE:** A discussion of expected probability and its use along with a comparison with FEMA methodologies is contained in Chapter III of the Main Report.

- 2181 The TSP is presented in a biased manner. In Table 1, the disadvantages related to other alternatives are much more detailed than the TSP. In order for all the alternatives to be adequately evaluated by the public, they should be represented equally as intensive as the TSP.

**RESPONSE:** Table 1 has been revised based on a change in the Selected Plan as well as further evaluations of the various alternatives. Refer to the summary table at end of EIS/EIR for a much more detailed comparison of the various alternatives.

- 2108 Page DEIS 1-5, paragraph 2 - The last sentence needs correction. Project sponsors, including the Corps, are



responsible for addressing impacts to endangered species pursuant to the Endangered Species Act 1973, as amended.

**RESPONSE:** Concur in part. This section of report is directed to major environmental conclusions and findings. A separate conclusion is included describing impacts on valley elderberry longhorn beetle. A full description of impact is included in Chapter 8.

1853 Appendix C, Table II-1 - This table inappropriately includes advance features and should be corrected.

**RESPONSE:** Concur. This table has been revised to reflect this comment.

2164 Appendix M, Chapter 7 - Intervals of slope instability elevation should be extended to elevation 1000. It is currently elevation 900 and the spillway is at elevation 942.

**RESPONSE:** Concur. This text has been revised to reflect this comment.

1999 Chapter 21 would be enhanced by cross-referencing to earlier chapters concerning construction and operation aspects of the dam.

**RESPONSE:** Cross-referencing is not necessary for individual chapters since an index has been added to the document which will enable the reader to locate specific topics in both the Main Report and EIS/EIR.

2172 DEIS 17-21, Magpie Creek Diversion Channel Improvement Projects - After paragraph 3 insert: The agreement was originally executed with the understanding that the project would cost \$3.5 million. The cost was based...

**RESPONSE:** We do not concur. This information is not viewed as germane to understanding cumulative impacts of other projects.

1852 DEIS, page 8-2, Table 8-1 - Potential impacts of waters of the U. S. caused by gravel extraction need to be included in this table.

**RESPONSE:** Requested change not necessary. Detention dam aggregate source changed from gravel bars to offstream quarry.

1079 I disagree with the conclusion of Table VI-2. Under Environmental Conditions, the loss of 700+ acres is significant and should be rated a low number. There appears to be some reverse logic here.

**RESPONSE:** The text and Table VI-2 have been changed to reflect the Selected Plan. The high rating for alternatives providing a high level of flood protection has not changed. Although 700 acres of loss is significant, this loss (when comparing all environmental resources impacted) is not nearly as high as is projected for the other alternatives considered.

2104 Page DEIS 14-20, Table 14-5 - The units for the contents of the table are not shown (attendance in visitor days?).

**RESPONSE:** Concur. Table revised.

2112 Page DEIS 6-3, paragraph 1 - Last sentence refers to a C-1 canal which is not displayed in Figure 6-1.

**RESPONSE:** Concur. Reference to C-1 canal removed from text.

1847 To reduce confusion, the revised DEIS should include both the Corps and FEMA flood protection levels concurrently in text and tables which indicate difference protection levels.

**RESPONSE:** The 100-year (FEMA) alternatives are defined in the main report and in Chapter 3 of the EIS/EIR as providing an 85-year level of protection using Corps evaluation procedures. Repeated referencing of the differences is not believed warranted.

2013 We suggest adding page numbers to the table of contents for Appendix P so that the various studies could be located readily.

**RESPONSE:** Concur. Page numbers added to Appendix P - Endangered Species.

## EFFICIENT USE OF FOLSOM

- 484 Alternatives such as modifications of Folsom more than meet federal standards for flood control.
- 24 Folsom Dam accomplishes the goals that are set forth for the Auburn Dam.
- 1172 Folsom Dam, authorized under the federal Flood Control Act, was constructed to provide flood control for Sacramento and would be sufficient if it were operated for that (original) purpose.
- 661 It was my understanding that Folsom is to be used only for flood control. If it was, then the Auburn Dam would not be needed.
- 1206 Folsom should be operated primarily as a flood control structure which was the original reason it was constructed.
- 804 I believe the best alternative is to reopen Folsom and properly manage it.
- 555 Manage the release of Folsom water more efficiently.
- 485 One alternative to consider is the greater utilization of Folsom Reservoir for flood control.
- 1189 We oppose reoperation of Folsom, as indicated in the report. We support reoperating Folsom to decrease the flood control space after a multipurpose dam is built at Auburn.
- 1198 Why do we consider building another dam on the American River when we built one 35 years ago for the specific purpose of flood control?
- 1905 I think that Folsom Lake could be reoperated to provide adequate flood protection for Sacramento.
- 1871 Sacramento should not rely on Folsom for adequate flood protection or dedicate Folsom totally for that purpose. Such operations would jeopardize the ability to control flows and results on fish, wildlife, and recreation would be devastating.
- 417 Improvements to the existing Folsom Reservoir could make it an effective flood control structure.
- 483 Instead of this proposed dam, how about utilizing proper management of Folsom.

- 44 You should consider converting Folsom Dam to a dry dam.
- 972 I recommend the reoperation of Folsom Reservoir with proper management.
- 489 You could also employ an increase in storage in Folsom Reservoir instead of a dam.
- 1971 Impacts would likely be greatly reduced if Folsom Dam were operated primarily for flood control rather than CVP operations.
- 2064 Appears that alternatives which reduce operation of Folsom for consumptive water supply were avoided. SWRQ 13 is to review American River water rights, including those of USBR as current flow conditions are inadequate to protect public trust resources. In light of these uncertainties, it is imperative that alternatives be sufficiently broad to provide full disclosure.
- 1873 We do not support the reoperation of Folsom.
- 1089 I support reasonable flood control measures including the reoperation of Folsom.
- 2048 Use Folsom for flood control.
- 724 Better and more efficient management and reoperation of Folsom will solve the problem.
- 1198 If we need immediate flood control, why don't we buy Folsom Dam from the federal government? They are selling those projects cheaply these days - the dam at Lake Berryessa is a good example.
- 428 It seems flood control has been managed at Folsom for years in the past. It seems adequate for flood control, storing water and recreation.
- 441 Reoperation of Folsom should be explored as an alternative to dam construction.
- 1650 Scratch your plans for Auburn Dam and look more closely at the expanded use and efficiency of Folsom Dam.
- 2017 There are less destructive ways of flood control, such as modification of Folsom Dam and the method of operation.
- 1881 We strongly oppose any consideration of Folsom reoperation or the deauthorization of the Folsom South Canal.
- 1871 We would not support a rededication of available nonflood-

control reservoir space for flood control for more than an interim period.

**RESPONSE:** Measures formulated to use Folsom Reservoir for more flood control were identified in the Main Report in the Plan Formulation Chapter and in the Plan Formulation Appendix. When Folsom Dam was designed in the 1940s, it was authorized to provide storage for many uses, such as flood control, water supply, hydropower, fish, and several other uses. The storage allocated for each of these uses is designated by Congress and cannot be changed without Congressional approval. The dam was believed to provide a high degree of flood protection at the time it was built (1955). During the last 36 years, the American River Basin has experienced several large floods which showed that Folsom Dam could not control an extreme flood (like a 100-year flood) and provide the desired level of protection to the Sacramento area. The present study of the American River has shown that modifying the dam and/or modifying the operation of the reservoir is not enough to provide the minimum 200-year level of protection that the State and SAFCA desire.

1971 Flow regime is responsible for the decline of the lower American fishery. It is also the primary cause of environmental impacts associated with Folsom reoperation for additional flood control.

**RESPONSE:** Impacts associated with this measure are described in Chapter 7 of the EIS and in the Plan Formulation Appendix.

2260 The assumption that real-time operation of Folsom will be uncertain does not appear justified based upon prudent reservoir operation. Rather than codify such an assumption in hydrologic assumptions, the Corps should take regulatory action in those cases where reservoir operation does not follow published operating rules.

4 The 1986 floods were the result of extremely poor management. Folsom was kept nearly full with a large storm approaching the area.

17 The floods of '86 were worsened by misoperation of Folsom Dam, not by a lack of adequate flood protection.

629 There would not have been a flood threat in 1986 if Folsom had been managed properly.

1096 I'm interested into what extent the management policies at Folsom contributed to the 1886 flood and its impacts.

- 1172 The flood of '86 occurred because Folsom Dam was being misoperated by the Bureau of Reclamation, i.e., it was not operated to benefit Sacramento and provide flood control.
- 1182 The flood of '86 was due to the Bureau of Reclamation's failure to follow correct procedures. As a result of that, we are now faced with the reincarnation of the Auburn Dam boondoggle.
- 1206 If Folsom's operating priority had been flood control in '86, most of that precipitation would have been contained by the reservoir.
- 1825 What effect did the late releases have on the 1986 flood situation?
- 2127 The section fails to point out that it is possible to operate multipurpose reservoir systems using operation rules based on probabilistic long-term forecast information which accounts for the current watershed conditioning.
- 1825 Chapter 3, page 10 - What is the undesirable downstream flooding when emptying flood control space? What are the threshold values the Corps doesn't want to exceed?
- 2125 As soon as forecasts indicate a flood, immediate discharge of 3,600 cfs evacuates almost 3,600 AF/hr or 86,000 AF/day.
- 2007 Please identify and discuss the Bureau of Reclamation's (BR) compliance with Corps operational guidance during this time period. Specifically, identify any warnings of water storage encroachment into flood storage space provided by the Corps to BR during weeks prior to the 1986 event. Discuss the impact of encroachment into flood storage space on control of the Folsom facility and the amounts and velocity of subsequent discharge. Identify the importance of this event in all subsequent plan formulation activities.

**RESPONSE:** Operation of Folsom Dam is discussed in the Reservoir Regulation Appendix. Folsom Dam operating procedures are based on forecasts of rainfall events, estimates of amounts of runoff, and other factors not precisely known ahead of time. In developing an operating procedure, these uncertainties are considered along with the potential impacts of making releases to determine the appropriate timing and magnitude of releases. A review of the flood control operation of Folsom Dam during the 1986 flood was made and a report was prepared by the Bureau of Reclamation. That report is entitled "PREVENTING A CRISES: The Operation of Folsom Dam During the 1986 Flood". The Corps examined the data surrounding the February 1986 flood, the timing of when the data were known and when the releases were made and found that the operation followed during that storm event was consistent with

established criteria. The operating scenarios presented in critiques that indicate smaller peak releases appear to be based on hindsight. Unfortunately, this is a luxury not available during the actual event, when, as in this case, the actual inflows to the reservoir were greater than forecasted throughout the first three days of the storm. The following is a more detailed discussion of the operation at Folsom Dam.

A hydrometeorological network of gages installed at 12 locations in the basin above Folsom Dam transmits data on rain, snow and temperature to a computer model located at the National Weather Service River Forecast Center in Sacramento. Inflows into the lake, based on hydrologic occurrences, can then be projected for a number of days. An accurate prediction of inflow requires advanced knowledge of the intensity and amount of rain expected, as well as the elevation above which snow will fall. However, despite technological advances such as computer maps, satellite photographs, radar and observed data, forecasts are generally not precise enough to operate a reservoir for longer than 24 hours following the prediction. Standard procedure by the Bureau of Reclamation, which was followed in the February 1986 event, is to coordinate proposed large releases with agencies including the Corps of Engineers, California Department of Water Resources, National Weather Service and State Reclamation Board.

In determining the appropriate timing and amounts of releases, the following downstream factors are considered:

- a. Campus Commons Golf Course and Discovery Park are inundated when flows exceed 20,000 cfs;
- b. Erosion to the Nimbus Fish Hatchery screen foundation begins to occur when flows exceed 20,000 cfs;
- c. The Sacramento County bike bridge crossing the American River downstream of Sunrise Boulevard is inundated and seriously damaged when flows exceed 45,000 cfs; and
- d. The American River bike trail is damaged when the flows exceed 65,000 cfs.

Another issue that has been raised to support the position that Folsom Dam was operated inappropriately was the fact that the 1986 event peak flows were considerably less severe than the flood for which Folsom Dam was designed. While the February 1986 flood peak was less than the reservoir design flood (RDF) peak flow, the 1986 event six-day runoff volume was 17 percent greater than the six-day RDF volume. Large reservoirs, such as Folsom, are more sensitive to volume than to peak flows. While a large reservoir could easily accommodate the volume of a high but brief peak floodflow, in the same reservoir a lower peaked floodflow with a larger volume often results in more storage space being occupied. This is especially

true if, as at Folsom in 1986, actual inflows exceeded forecasted inflows.

1878 Appendix K-57 tabulation should be corrected to 31.13 "Excess 1881 for Runoff."

**RESPONSE: Concur.**

2127 Although there are real limits on the potential flexibility of operations at Folsom Reservoir, the section on flood forecasting for reservoir operations makes overly broad statements that fail to recognize the potential for improvements in this area.

**RESPONSE: See general response "Folsom Operation in '86 and Forecasting" and "Efficient Use of Folsom".**

2125 How often is Folsom Dam full before the onset of the floods, especially the big ones? I contend that most frequently there is more than 400,000 AF available in Folsom.

**RESPONSE: Occasionally Folsom Reservoir has had more space in it than required by the flood control diagram. However, it is operated to keep it as full as possible without encroaching into the flood control space. When analyzing the flood threat to a major urban area or designing flood control systems, it is imperative that a conservative approach be used. For this reason, we cannot assume that more flood control space is available in Folsom Reservoir than what is dedicated to flood control and operated to maintain as flood control reservation.**

1971 Flow regime is responsible for the decline of the lower American fishery. It is also the primary cause of environmental impacts associated with Folsom reoperation for additional flood control.

**RESPONSE: Impacts associated with this measure are described in the EIS and Plan Formulation Appendix.**

2159 It is not in the best interest of the community to rely on any project that relies on permanent reoperation of Folsom.



**RESPONSE:** Measures formulated for flood control and their impacts are discussed in the Plan Formulation Appendix.

2062 We support meeting federal flood control (FEMA) standards by reoperating Folsom dam primarily for its original intended purpose (flood control), improving the safety and efficiency of Folsom dam by lowering its spillway, utilizing existing upstream dams for flood control and improving downstream levees. These activities should be accomplished immediately to increase flood protection for the Sacramento area and prevent mandatory flood insurance requirements by FEMA.

**RESPONSE:** Refer to general response to Efficient Use of Folsom, Chapter V, for description of alternative plans that incorporate the measures identified in the comment, and to Appendix B, Chapter II.

2111 Minor mechanical difficulties should be corrected so outlet works are fully functional. Recreational facilities subject to inundation damage that hamper or compromise the flood control operations should be removed from the floodway. Flood control release decisions versus saving water supply should not be burden placed on dam operators. Instructional guidance should be provided to minimize operator personal decisions.

**RESPONSE:** The Bureau's Central Valley Operations Coordinating Office makes flood control releases decisions based on operation guidelines contained in Folsom Water Control Manual.

2006 The discussion of the permanent reoperation of Folsom reservoir is mislabeled and misleading. In short, this potential project component is not responsive to the authorizations that facilitated your agency's construction of Folsom structures. Our understanding of the hierarchy of responsibilities that provided justification for this project were: (1) public safety enhancement provided by increased flood protection; (2) maintenance of the environmental values required by your agency's public trust responsibilities; (3) generation of revenue from water sales and power generation; (4) provision of greater recreational opportunities. The discussions of Operational Considerations and Operation of Folsom Reservoir in the Feasibility Report (pp.III-9 to III-11), however, identify a lack of consideration of public trust responsibilities in the analysis of current and potential operations schemes.

**RESPONSE:** The Folsom Dam flood control operation was developed at the time the dam was constructed. It has been periodically reviewed and has been modified in an attempt to improve operation, especially after a major flood event.

2006 Please provide analysis of the hierarchy of operation of the Folsom Dam facility in response to these concerns and the operational responsibilities. Please provide both State and federal definitions of public trust responsibility for the lead agencies of this investigation and all other organizations that operate Folsom Reservoir works.

**RESPONSE:** The Corps' flood control manual covers only the flood control space operation which the USBR uses in their operation decisions during the flood season. The Corps does not have responsibility in the rest of the project operation.

2007 The discussion of "the efficiency with which the dam can be operated to achieve design releases" should include the identification of inadequately high gate location within the dam face. Identify the need to lower the gate to achieve optimum control and flexibility in the operation of this facility.

**RESPONSE:** Lowering the dam spillway gates is included as one of the feasible flood protection measures identified in Chapter V of the Main Report. This measure is included in the 150-year and 100-year (FEMA) levee/storage and spillway alternatives.

2007 We must take issue with your operation priorities: ...the issue of public safety takes precedent over all other concerns. Please discuss this focus on priorities and any needs for realignment or replacement of recreational facilities.

**RESPONSE:** The uses of Folsom Dam and Reservoir are established by statute.

2009 Define how "less than optimal use of Folsom storage" is an "inescapable operational reality." What prevents the highest and best use of this facility? Why isn't Folsom Dam used in the best manner possible?

**RESPONSE:** The uses of Folsom Dam and Reservoir are established by

statute. It is intended that the space allocated to flood control at Folsom, and all other dams, be utilized in the most efficient manner possible. In actual practice, perfect operation of reservoir facilities is not consistently achieved, due to the constraints that are the consequence of operating a flood control facility in real time with less than perfect information and weather projections which are subject to uncertainty. Routing assumptions prepared for this project assumed less than perfect operation of Folsom. Please refer to Appendices K, Hydrology, and L, Reservoir Regulation, for additional detail.

2009 Identify needs to upgrade mechanical facilities, their costs, and the reason that optimal operation of Folsom Dam is not being recommended. Define the need for relocation of recreational facilities to enhance public safety. Contrast your definition of "natural reluctance to release" with prudent management of this public safety facility.

**RESPONSE:** Measures to upgrade the efficiency of Folsom Dam and Reservoir are included in the 150-year and 100-year (FEMA) levee/storage and spillway alternatives. These alternatives were not selected because they provide relatively low levels of flood protection.

2009 Define the impact of present operations on the lower American River and under the TSP. Identify the reason that the TSP does not provide cold water reservation for fisheries that are impacted by current "less than optimal use of Folsom storage" policies.

**RESPONSE:** Impacts of the Selected Plan on fisheries and proposed mitigation of the impacts are discussed in Chapter 7 of the EIS.

1198 If Sacramento owned Folsom Dam, we would operate it for our flood protection, water supply, and recreation. We, as local residents and the State of California, could manage this region's water better than Federal bureaucrats 3,000 miles away.

1905 If we use our electrical and water resources more efficiently, Folsom would not have to be kept as high.

**RESPONSE:** Comments noted.

## **ENDANGERED SPECIES**

2069 Swainson's hawk, giant garter snake, valley elderberry longhorn beetle, winter-run chinook salmon are State or federally listed threatened or endangered species occurring within or near Natomas. Establishment of firm plans to avoid impacts on these species has not occurred.

2118 Page 9-9, paragraph 4 - The specific practices for levee maintenance used by the managing district should be discussed here. Practices could impact the prey species for the Swainson's hawk in different manners. Maintenance timing and methods used by the districts offer mitigative opportunities that should be explored.

**RESPONSE:** The project's local sponsors are currently developing specific mitigation plans for the State-listed species that would be impacted by the Selected Plan (GGS and Swainson's hawk). The Corps of Engineers is developing plans for the federally listed species that would be impacted (valley elderberry longhorn beetle). These plans are being drawn up in consultation with FWS and DFG. All significant impacts will be mitigated to insignificant levels. Chapters 8 (Endangered Species) and 22 (Mitigation and Environmental Monitoring) of the EIS/EIR have been revised to include the most current available information on these mitigation plans. A detailed description of the local sponsor's habitat conservation planning process is included in Appendix P.

760 I am concerned that the dam will harm endangered species.

447 I would like to be assured that wildlife and endangered species would be protected.

754 It is important to protect endangered species.

1012 I support alternatives that do not endanger endangered species.

15 The Natomas wetlands is habitat for various endangered species which are threatened by further development in the floodplain. I will not inadvertently support further destruction of this habitat.

1918 How can the Corps mitigate endangered species?

1841 Impacts to sensitive species should be avoided.

1068 The canyons being home to endangered species such as cougar and peregrine falcon must remain free flowing for these

species continued survival.

- 1776 There should be minimum impacts on critical habitat for endangered species.
- 1165 This is an opportunity to acquire wetland acreage to protect endangered species.
- 2013 There is a population of California hibiscus along a drainage ditch beneath the northbound on-ramp to Interstate 80 from West El Camino Avenue observed by Caltrans in 1988 and was not reported in the rare plant study.
- 2166 Discuss the California State Department of Fish and Game Species of Special Concern List.
- 2166 Fully discuss the Federal Candidate Species categories. It fails to identify FC3 and FC4 categories.
- 2013 The methodology described for the rare plant survey for the north Natomas area indicates that the research focused entirely on vernal pools and essentially ignored potential occurrences of rare species associated with riparian or emergent wetland species.

**RESPONSE:** Chapter 8 (Endangered Species) and Appendix P (Endangered Species) discuss State and federally listed rare, threatened and endangered species which may be impacted by the project. The species included in these discussions were identified through coordination with FWS and DFG. Field surveys were also completed in order to more accurately determine if, when, and where the species identified occur. The results of this identification process are documented in Appendix P. Potential impacts to special status species are not discussed if FWS, DFG, and the COE determined: (a) they are not likely to occur in the project area, or (b) they are not likely to be impacted by the project. Nevertheless, if such species are encountered during project construction or operation, all activities which could harm those species must cease until an approved mitigation plan has been put in place.

- 1999 Reasons for project justification on page 20-3 should include positive environmental effects of the project on the region. It would preserve habitat necessary for giant garter snake, valley elderberry beetle and Swainson's hawk from destruction in a major flood event.
- 2117 Endangered species text should be modified to state that the FWS has found that significant amounts of habitat for the beetle exist in the project area and that the 400-year

alternative would likely have an adverse effect on the VELB.

- 1992 The levee improvement work in the Natomas area would possibly impact the beetle habitat along with the remaining alternatives discussed. The report should include some discussion of possible mitigation actions should levee improvement construction encounter additional elderberry bushes.
- 1994 The no-action alternative has adverse direct impact while the TSP and other alternatives could benefit Swainson's hawk, VELB and giant garter snake. Habitats would be protected during flood periods.
- 1993 The no-project alternative has many severe and adverse environmental impacts upon endangered, threatened or candidate species which were not discussed by the report. Should the Natomas Basin or the south Sacramento area be inundated during a major flood event with between 10 and 20 feet of water, which could substantially destroy the habitat that support resident populations of the valley elderberry longhorn beetle, giant garter snake, and Swainson's hawk.
- 1999 On page 9-10, paragraph 2, errors are noted in the percentage of available acreage utilized by the Swainson's hawk for foraging in Natomas.
- 1993 Page 9-10, paragraph 2, states 26,373 acres or approximately 33 percent of cropped acres are generally used by Swainson's hawk for foraging. Should note that 26,373 represents 68 percent of cropped acres, not 33 percent. Therefore, there are apparently 12,616 cropped acres (32 percent) used for foraging. Of that amount, 8,621 acres are located in Natomas. A similar proportion of suitable habitat would therefore be 2,760 acres, not 2,845. Same computation error is on page 9-19, paragraph 3.
- 2227 The analysis of indirect impacts to species of concern assumes that current growth trends will continue, but they are likely to increase based on the growth-inducing effect of the project. The report should examine the indirect impacts based on more growth and the greater habitat loss.
- 2167 Consider the effect of levee operational maintenance (such as mowing and shrub removal) on the recruitment of future elderberry plants.

**RESPONSE:** The discussion in the Endangered Species Chapter has been revised or expanded to reflect these comments.

2013 The rare plant survey report in Appendix P did not include a bibliography so it was impossible to ascertain whether or not the literature search was thorough and utilized the most up-to-date information available.

**RESPONSE:** The references consulted in connection with the rare plant survey appear at the end of the survey report, between the Conclusions and Recommendations Section and the survey report's Appendix 1. The rare plant survey report is included in Appendix P of the EIS/EIR.

1959 The DEIS provides only a cursory examination of possible impacts on the federally listed Sacramento River winter-run chinook salmon. No quantitative data is provided to substantiate the claim that the impact from increased water quality impacts from development in Natomas would not be significant.

**RESPONSE:** The National Marine Fisheries Service has advised that the project will not have an effect on the winter-run salmon. The discussion of potential project impacts to the winter-run chinook salmon in Chapter 8 (Endangered Species) has been expanded. The possible indirect water quality impacts in the Sacramento River are discussed in Chapter 6 (Water Quality). The City's NPDES permit requires the implementation of best management practices in order to prevent a significant increase in runoff pollution in the Sacramento River.

1994 The major shortcoming of Chapter 9 is failure to discuss direct and indirect impacts of the 200-year alternative even if it is similar to the TSP.

**RESPONSE:** The Selected Plan in the final EIS is the 200-year alternative. The 400-year alternative is among the group of alternatives analyzed, but not selected. The direct and indirect impacts of the 200- and 400-year alternatives are either identical, or so similar as to be indistinguishable.

1993 The DFG's "five-year Status Report for the Swainson's Hawk", which was submitted to the California Fish and Game Commission in 1990, notes that incompatible foraging habitat, primarily rice and orchards is widespread in the Sacramento Valley. This has resulted in reduction in micortine rodent prey populations which may be a factor in the decline in Swainson's hawk populations.

1993 The EIR should clarify that no construction is planned closer

than 1 mile to Swainson's hawk nesting area. Safe zone is considered 1/2 mile radius. Therefore, construction impacts of the TSP would have no significant impact on Swainson's hawk.

- 1992 Remaining alternatives would have major impacts on valley elderberry longhorn beetle because they involve major levee reconstruction and bank protection work along the lower American River and in the Natomas area.
- 2167 Table 9-1 fails to identify any State Candidate Species and State Species of Special concern.
- 1993 The State-listed giant garter snake requires high ground or uplands for cover and refuge from floodwaters during the dormant (winter) season (Hanson 1988). Under the no-action alternative, flooding could be expected to occur during that time of year when the giant garter snake is dormant, a high mortality of this species could be expected. DFG has developed a "Draft Giant Garter Snake Mitigation Plan for North Natomas", which provides full mitigation for the potential impacts of the proposed drainage system for that area. The mitigation proposal has been agreed to by developers, the City of Sacramento and the California Department of Fish and Game.
- 1992 The Endangered Species Chapter should contain a reference to the EIRs which were prepared for the north Natomas drainage system by the City of Sacramento.
- 2119 Specific acreages historically inhabited by the giant garter snake should be mentioned.
- 1840 The federal candidate/State-listed giant garter snake and State-listed Swainson's hawk may be severely affected by the proposed project and induced growth within the Natomas area.
- 1840 Levee work within Natomas and a reduction in American River flows may result in losses of elderberry plants and therefore adversely affect the federally listed valley elderberry longhorn beetle.
- 2118 The Selected Plan would likely have an indirect adverse impact on the VELB. The 100- (FEMA) and 150-year alternatives would likely have a direct adverse impact on the species. The 100- (FEMA), 150-year, 200-year, and 400-year alternatives would all likely have an adverse effect on the VELB.

**RESPONSE:** The points made in these comments concern issues that are covered by the discussions in Chapter 8 (Endangered Species) and Appendix P (Endangered species). No specific shortcomings in those discussions are revealed by these comments. The U. S. Fish



and Wildlife Service issued a biological opinion stating that the project will not result in jeopardy to any federally protected species. The biological opinion is summarized in Chapter 8 and endangered species mitigation is discussed in Chapters 1, 8, and 22.

2166 Acknowledge that the 1973 FESA has been subject to amendments, the most significant of which was enacted in 1986.

RESPONSE: The fact that FESA has been amended is noted in the "Significance Criteria" subsection of the "Impacts" Section of Chapter 8. The provisions of FESA pertinent to the discussion in Chapter 8 are mentioned in the Chapter.

1832 Potential impacts of levee construction on endangered species have not been analyzed, completed or included in detail.

RESPONSE: The potential impacts of levee modification and construction on endangered species is covered in Chapter 8 (Endangered Species). The most complete discussion is found in the sections describing the impacts of each ARWI project alternative.

2118 Additional impacts that could result from urbanization include unlawful taking, general disturbance, habitat degradation and introduction of harmful predatory fish.

2087 Wouldn't urbanization increase the predatory risk to Swainson's hawk or the giant garter snake by ignorant people? In plain english, wouldn't some people be inclined to kill them out ignorance or cruelty?

RESPONSE: The mitigation plans being developed for the endangered species adversely impacted by the project will be designed to minimize the impacts of human disturbance and illegal taking. These plans are currently under development, but the most current information about them is included in Chapter 8 (Endangered Species) and Appendix P (Endangered Species).

1335 A NRA would offer recreational activities without threatening endangered species.

RESPONSE: The establishment of a National Recreation Area is not within the jurisdiction of the Corps of Engineers or the scope of this project.

2087 Would the mitigation measures for the Swainson's hawk have a negative affect upon the giant garter snake? Page 9-12, paragraph b, states that "if suitable foraging habitat was insufficient to accommodate planned development, previously unsuitable lands, such as rice field, would be converted into appropriate cover." Yet on page 9-18, paragraph 1, it states that decreasing rice production and field conversion to other crops could negatively impact GGS.

**RESPONSE:** Under no-action conditions, it is true that cropping patterns that benefit one of these species adversely impact the other. Under with-project conditions, however, neither population must be placed in jeopardy. This can be achieved if lands that are currently managed for agriculture, but which only incidentally support these species, can be intensively managed specifically to preserve the species of concern.

2227 The Corps must prepare a Biological Data Report and FWS prepare a formal Biological Opinion for inclusion in the DEIS. The report should be revised to reflect these reports and should be recirculated for public review.

**RESPONSE:** All relevant reports and data which have been prepared to date have been included in the EIS/EIR.

2227 On page 9-3, valley sagittaria is identified as a species of concern that could be impacted by the project. However, the report contains no further discussion of the potential impacts to this species. This information should be added to the report and released to the public for comment before being certified.

**RESPONSE:** Only threatened and endangered species are discussed in Chapter 8 (Endangered Species). Other species of concern are discussed in Chapter 7 (Fish, Vegetation, and Wildlife) as part of the discussion of general environment.

2226 Please explain how the FWS and DFG determined which species of concern were likely to be found in the project area and whether they considered species not listed by government agencies but recognized as threatened by private interest groups.

**RESPONSE:** FWS and DFG maintain extensive databases covering the

status and occurrence records of endangered species. Information from a wide variety of reliable sources is used to update these data bases. Information from private groups is used, if it can be verified as accurate. Information on how the FWS and DFG arrive at their determinations is generally not included in environmental impact statements.

## **ENLARGE FOLSOM**

2150 The study did not even estimate the cost of raising the existing Folsom Dam, one of the alternatives eliminated with little analysis.

**RESPONSE:** The section on raising Folsom Dam in Appendix B, Plan Formulation, has been expanded to document the reconnaissance-level analysis of the alternative.

## EO 11988

754 You must protect the floodplain and the existing habitat.

RESPONSE: The project has been designed to affect the smallest area possible in the Natomas area, keeping construction impacts to the landward side of the levees being raised. The Natomas area was an historic floodplain prior to the original reclamation effort which resulted in construction of the existing levee system. Since completion of the levee system, the Natomas area has been prevented from functioning as a floodplain. This area is not considered to be a floodplain as defined under EO 11988.

600 I believe the floodplain should only be used for flood control.

RESPONSE: The project has been designed to affect the smallest area possible in the Natomas area, keeping construction impacts to the landward side of the levees being raised. There will be no work accomplished in the floodplain adjacent to the lower American River. The Natomas area was a historic floodplain prior to the original reclamation effort which resulted in construction of the existing levee system. Since completion of the levee system, the Natomas area has been prevented from functioning as a floodplain. This area is not considered to be a floodplain as defined under EO 11988.

1828 Executive Order 11988 states that the Corps shall not engage in plans that encourage or induce development in floodplain and yet this plan does exactly that.

1213 You say the dry dam complies with Executive Order to a high degree. I take exception to that statement. The Corps must take full responsibility for this Natomas growth as a direct, not an indirect, result of your proposal.

1175 Development in Natomas triggered by the project would result in the loss of habitat and is contrary to executive orders requiring that flood control projects not result in development in floodprone areas.

2146 The February 1991 Fish and Wildlife Service letter raised the issue of the TSP being contrary to federal policy contained in two Executive Orders (EO 11988 and EO 11990). Since the U. S. Constitution establishes supremacy of federal laws over State and local laws, the Corps should explain why the Executive Orders do not apply in this case.

**RESPONSE:** Provision of flood protection for developed areas, mitigation for direct environmental impacts, and local and State controls over indirect impacts does meet the requirements of Executive Order 11988. This is more fully discussed in Chapter 23 (Compliance With Applicable Laws, Policies, and Plans).

## EO 11990

1823 The proposed project doesn't minimize harm to wetlands as directed in EO 11990. The declaration of no responsibility for indirect impacts by the Corps is in direct conflict with the true intent of the Executive Order.

688 It would make more sense to leave the wetlands open for wildlife and natural ponding.

416 Protect the wetlands and their species.

1175 Natomas development caused by this project would result in the loss of 82,000 acres of upland and 7,000 acres of wetland habitat that is contrary to the Executive Order requiring protection of wetlands.

1653 You need to protect the Natomas wetlands, not build more dams.

1012 I support alternatives that do not endanger wetlands.

**RESPONSE:** Provision of flood protection for developed areas, mitigation for direct environmental impacts, and local and State controls over indirect impacts does meet the requirements of Executive Order 11990. In addition, the existing Corps and EPA protection afforded under provisions of Section 404(b)(1) of the Clean Water Act will remain in force to prevent further loss of wetland areas. This is more fully discussed in Chapter 23 (Compliance With Applicable Laws, Policies, and Plans).

## **FISHERIES**

2104 Any effect on Folsom operation could have an effect on CVP operation including Shasta and Clair Engle reservoirs. Therefore, Folsom reoperation, therefore theoretically, could have an indirect impact on species such as the winter-run salmon. While not significant, it may not be correct to indicate that no impact would occur. Likewise, higher temperatures in the Sacramento River due to CVP reoperation could have an adverse impact on anadromous fish habitat.

**RESPONSE:** Implementation of the Selected Plan does not include the reoperation of Folsom and will have no long-term impacts to fisheries in either the American or the Sacramento Rivers. The temporary reoperation of Folsom is a separate project and is briefly discussed in Chapter 17, Cumulative Impacts of the EIS/EIR.

2214 FWS determined that any increase in water volume would have an adverse impact on anadromous and resident fish resources in the Sacramento River through increased escapement into the Bypass over without project conditions. Without the losses quantified, how can the Corps assume the losses to be insignificant?

**RESPONSE:** The widening of the Fremont Weir that would have allowed increased overflow into the Yolo Bypass is no longer a feature of the Selected Plan.

1989 TSP would have positive impacts on American River fisheries. Higher water levels behind Folsom would allow larger discharges of cold water during the dry season. Increased water storage in Folsom would enhance aquatic fishery in the lake. Aggregate mining would create deep pools, allowing cooler water in upper reaches. This would also benefit fish species, especially during dry years when pools may provide fish refuge.

**RESPONSE:** Aggregate mining is no longer a part of the Selected Plan. The preferred alternative for extraction of aggregate in the Selected Plan is the Cool Quarry. Implementation of the Selected Plan will not impact the operation of the Folsom Reservoir. Therefore, the beneficial impacts referred to in the comment will not result as a direct impact of the project.



2215 What will be done to stop the decline of fish populations due to agricultural waterways and open drainage lost to development, increased copper and lead in the water supply and the effect of adverse conditions of Fisherman's Lake?

**RESPONSE:** Impacts from future development are considered indirect impacts of the project because these impacts will not occur unless local government permits urbanization to proceed. Accordingly, mitigation of these impacts is the responsibility of the local agencies with authority for land use in the affected areas. The Sacramento Area Flood Control Agency is independently working on a plan to preserve listed species such as the giant garter snake. This plan, if implemented, should also protect fish in the drainage canals where the snake lives.

2066 Wide discrepancy among information extracted from the FWS report to determine resource values, identify impacts, and develop mitigation. Failure to incorporate FWS recommendations for impact assessment and mitigation is of great concern.

**RESPONSE:** The mitigation recommendations concerning fisheries resources affected by the selected plan are fully discussed in Chapter 7 of the EIS/EIR. All appropriate mitigation recommendations have been incorporated into the project mitigation.

1957 Tremendous political and economic pressure to operate the dry dam as a multi-purpose dam would follow its construction. Therefore, the EIS should discuss the effectiveness of existing instream temperatures and flow guarantees in the lower American, Sacramento Rivers, and the Delta for fisheries protection. It should also discuss if a multi-purpose facility would affect these same temperatures and flows.

**RESPONSE:** Should a decision to construct a multi-purpose facility be made an environmental document will be required. That document would include an appropriate discussion of impacts to water quality and quantity which would result from construction and operation of the multi-purpose facility. The selected plan will have no impact on the current operation of Folsom Dam, therefore there will be no affect on the existing instream temperature and flow guarantees currently in force.

2217 What is the basis for the statement that the upper American River fisheries will decline without the project?

**RESPONSE:** This statement is based on information received from FWS in their Coordination Act Report (Appendix S).

1989 Report doesn't address potential to provide exchange of stored water at Folsom for appropriately timed cold water releases from Shasta and benefit winter-run Chinook salmon. Growing rice in the Natomas basin is detrimental to Chinook as diversion of water from Trinity to the Sacramento River is required. Report talks about importance of rice for waterfowl, not trade-off of water releases for salmon.

**RESPONSE:** The report addresses the impacts which are likely to result from construction and operation of the project. Because there will be no change in the operation of Folsom Reservoir as a result of this project, it is not appropriate to expand the scope of analysis to include such actions. This type of activity is more appropriately discussed in documents discussing impacts related to water marketing, the operation of the Central Valley or State Water Projects, or documents dealing with changes in the operation of Shasta or Folsom Reservoirs.

2066 Mitigation measures are incomplete and inadequate i.e. page VII-12, paragraph 7 typifies the total failure to develop meaningful mitigation.

**RESPONSE:** Details of project mitigation are contained in the chapters dealing with the individual resource categories and are summarized in Chapter 1. The mitigation committed to include measure to offset impacts related to the construction and operation of the project.

## **FISHERIES-LOWER AMERICAN**

1258 The dam will ruin the spawning of the fish.

**RESPONSE:** Construction of the dam will have no long-term impacts on the spawning of fish in the upper American River since there will be no change to the existing conditions. The fish spawning in the lower American River would not be affected by dam construction activities. Impacts to fisheries resources are discussed in Chapter 7 of the EIS/EIR.

1467 There should be real assurances of (water) releases for downstream fisheries in the lower American River.

510 The dam would be very detrimental to the salmon which inhabit the lower American River.

1989 Improved water regulation would alleviate straying of salmonoids into the Sacramento River drainage irrigation systems during high flows. Even if fish spawn successfully, progeny is lost as these temporary tributaries dry up and fish attempt to migrate downstream.

**RESPONSE:** As discussed in Chapter VII of the Main Report and Chapter 7 of the EIS/EIR, the Selected Plan would not affect the magnitude or timing of nonflood flows in the lower American River.

1907 Without the dam, the fisheries and spawning grounds in lower American River would be decimated in the event of a flood.

**RESPONSE:** Comment noted.

124 Reoperation of Folsom could also provide more water for the decimated salmon, steelhead, and shad fisheries of the lower American River.

**RESPONSE:** Permanent reoperation of Folsom Reservoir would result in a significant adverse impact to fisheries inhabiting the reservoir and the lower American River.

461 Any mitigation must, as a matter of law, address the potential impact on downstream fisheries of a second water storage and delivery facility.

**RESPONSE:** The mitigation for impacts to fisheries is discussed in Chapters 7 and 22 of the EIS/EIR. There is no second water storage and delivery facility planned as part of the project.

790 A multipurpose dam would provide adequate water needed for the flushing of Delta saltwater and encourage fish migration, spawning, and survival.

1199 The dry dam will adversely affect the Folsom Lake fishery while doing nothing to enhance the threatened fisheries on the lower American River.

1865 It will be detrimental to our fisheries in Folsom Lake.

**RESPONSE:** Additional information regarding impacts resulting from operation of the project are discussed in Chapter 7 of the EIS/EIR. There would be no change in operation or condition in Folsom Reservoir due to the operation of the flood detention dam.

1875 We support adequate flows to the lower American River for fish and wildlife, which eventually aids Delta water quality.

**RESPONSE:** Comment noted.

1841 Details of the fishery impacts analysis of temporary Folsom reoperation should be in the revised DEIS as well as analysis assumptions and the difference between FWS and Corps analyses. Estimate expected cumulative fisheries loss over the life of the project.

**RESPONSE:** Fisheries impacts associated with this project are discussed in Chapter 7 of the EIS/EIR. Impacts resulting from the possible temporary reoperation of Folsom Reservoir are briefly discussed in Chapter 17, Cumulative Impacts, of the EIS/EIR. These impacts will be fully evaluated in a separate EIS scheduled for release in March 1992.

2257 The Corps refused to fund studies of the lower American River as requested by FWS. This would have identified pre- and post-Folsom aquatic habitat conditions, providing a basis for adequate analysis of the TSP on resident and anadromous fisheries. Without this baseline information, the degree and severity of impacts to fisheries cannot be determined. The

Corps' expectation of their insignificance lacks scientific basis.

2260 The Corps should include plans for monitoring the effects of reoperation of Folsom on the lower American River. Especially of concern are those sensitive fish populations identified in the EIS.

**RESPONSE:** The construction and operation of the Selected Plan will have no impact on fisheries in the lower American River. Reoperation of Folsom is not a feature of the Selected Plan. The Folsom Reoperation Study that will be completed in March 1992, is discussed in Chapter 17 of the EIS/EIR, Cumulative Impacts.

2113 Page DEIS/DEIR 8/9, paragraph 4 - Clarification is needed here. It needs to be stated that the Fremont Weir/Yolo area only supports fish populations during high flow periods during the fall-winter period. At other times it is dry.

**RESPONSE:** The lengthening of the Fremont Weir is no longer part of the Selected Plan. Impacts in this area are, therefore, not considered.

1989 There is no basis for FWS conclusion that TSP would cause fish populations to decline. Only rationale would be due to loss of drainage canals/irrigation canals. However, pesticide levels are currently a matter of concern. Existing conditions would seem to be causing a decline in fisheries in canals irrespective of flood control alternatives selected.

**RESPONSE:** Comment noted.

2134 The determination that the TSP is environmentally superior is flawed because the impact measurement was limited to wildlife habitat, thus excluding important impacts such as air and water quality. The assumption was then made that the 100- and 150-year alternatives would require reoperation of the Sacramento River projects to heavily impact salmon.

**RESPONSE:** The EIS/EIR considers air quality and water quality in detail in Chapters 6 and 12. The document considers one 150-year alternative and three 100-year (FEMA) alternatives. One of the 100-year (FEMA) alternatives, the FEMA levees alternative, does not involve the reoperation of Folsom Reservoir. For a more detailed discussion of all the alternatives, please refer to Chapter 3 of the EIS/EIR and to Appendix B.

2117 Page DEIS/DEIR 9-3, paragraph 5 - We recommend deleting the last two sentences.

**RESPONSE:** The text in Chapter 8 of the EIS/EIR has been changed to state that the Selected Plan will have no impact on winter-run chinook salmon.

1958 The National Marine Fisheries Service should be included in the development of mitigation and monitoring plans for impacts to anadromous fisheries or anadromous fish habitat. It should also be given an opportunity to review and comment on all fish screen designs in the final project. We may require formal consultation under ESA to determine impacts to winter-run salmon.

**RESPONSE:** The Selected plan will have no impact on the winter-run chinook salmon. A pump station with fish screens will be installed on the Natomas East Main Drainage Canal to pump water into the NEMDC during flood conditions. During extreme high flows, when the pumps would be operating, fish migration would be stalled anyway, and therefore no significant impacts to fish are expected from the operation of the pump/plug facility. See Chapter 7 of the EIS/EIR for more information about this facility.

2103 It is stated on page 8-21, paragraph 3, sentence 3, that fishery impacts in the reservoir would result from an increase in reservoir fluctuations and drawdown in future years. What was the basis for this assumed Folsom reoperation? That is inconsistent with the assumptions used in the Recreation and Visual Impacts chapters.

**RESPONSE:** The above reference describes the no-action alternative. Implementation of the Selected Plan will not impact the operation of Folsom. The increases in water demand described in the no-action alternative are assumed to occur independently of the flood control alternative plan which is implemented.

2006 The DFG's draft Steelhead Management Plan asserts that the steelhead fishery in the American River has declined to such low levels that without restoration of the population, numbers will continue to decline. Provide your assessment of the accuracy of their assertion, in the context of current "ramping" of flow releases.

**RESPONSE:** The Selected Plan will not require a change in the operation of Folsom and no impact to the steelhead fishery will therefore occur in the American River as a result of the project. It is beyond the scope of this project to comment on DFG's Management Plan.

1959 There's no mention of possible impacts to declining species such as the spring and fall runs of chinook salmon or striped bass.

**RESPONSE:** The Selected Plan will not impact chinook salmon or striped bass. See answers to Comments #2103 and #2006 above and Chapter 7 of the Final EIS/EIR.

461 Until Folsom and Shasta facilities can be run in a manner to protect the natural river system, the American River fisheries will soon be on the endangered list like the winter-run salmon.

**RESPONSE:** Comment noted.

1977 The EIS states that impacts are expected to fisheries from bank stabilization work, but doesn't support this statement.

**RESPONSE:** The Selected Plan does not include bank stabilization as a project feature. No impacts will, therefore, occur from bank stabilization work.

528 Damming the river would cause many fish to die who go up stream to spawn, approximately 95 percent.

816 The dam will destroy some fish spawning areas.

**RESPONSE:** The American River is already dammed by the Folsom Dam, which prevents 100 percent of the anadromous fish from migrating beyond it to the flood control dam site. The Selected Plan will, therefore, not interfere with the migration of fish.

790 A multipurpose dam would provide adequate water needed for the flushing of Delta saltwater and encourage fish migration, spawning and survival.

**RESPONSE:** Comment noted.

461 Any mitigation must, as a matter of law, address the potential impact on downstream fisheries of a second water storage facility.

**RESPONSE:** The Selected Plan is a flood control only facility and no water will be stored behind it permanently. The Selected Plan will have no long-term impacts to fisheries and no mitigation will be necessary.

510 The dam would be very detrimental to the salmon which inhabit the river.

**RESPONSE:** The Selected Plan will have no impacts to salmon. See Chapter 7 of the EIS/EIR for a more detailed discussion about impacts to fish, including the salmon.

1467 There should be real assurances of releases for downstream fisheries.

**RESPONSE:** Releases for downstream fisheries will not be impacted by the Selected Plan. Guarantee of sufficient releases from Folsom Lake is not the responsibility nor within the authority of the Corps.

1907 Without the dam, fisheries and spawning grounds would be decimated in the event of a flood.

**RESPONSE:** Comment noted.



## **FISHERIES-UPPER AMERICAN**

844 I fish this river and don't want to see this dam ruin more habitat.

**RESPONSE:** After construction is complete, the river and canyon will be virtually unchanged from preproject conditions.

1175 According to the FWS, sediment transport and fish stranding due to water fluctuation will result in significant impacts to the Middle Fork trout fishery.

**RESPONSE:** Following rare periods of short duration impoundments, floodwater impounded temporarily behind the dam will flow through the dam by way of unregulated gates at a rate which will minimize erosion from the canyon wall, and minimize the chance of fish stranding in side channels or isolated pools. Sediment deposition will be minimal.

557 The dam will lead to the death of fish in upper American River.

**RESPONSE:** Project impacts to the fisheries resources in the river are discussed in Chapter 7 of the EIS/EIR.

2261 The discussion of TSP impacts to fisheries fails to mention the gravel that will be removed from these aquatic habitats. The effect of dam construction is completely ignored.

1988 Page 8-27 - Unsupported statement that construction of TSP would not impact fisheries in the upper American. Contradicted elsewhere in the EIR. Impacts during construction due to diversion of river at construction site. Impacts due to gravel mining. Increased sedimentation, disturbance and alteration of streambed will affect aquatic life in short-term. Upstream sediments could affect Folsom. Lower American impacts should be discussed.

**RESPONSE:** The American River is currently being diverted through an existing diversion tunnel. This diversion would continue during the construction of the dam. Following the completion of the detention dam construction, the tunnel will be sealed off and the river will be routed through its original channel. The preferred gravel mining site is the Cool Quarry. No mining of gravel is proposed for the streambed. For more information about the

proposed gravel mining site, see Appendix M. The proposed detention dam will not impact the lower American River.

2066 Project impacts within borrow areas to fishery and mitigation measures are not discussed. Location and extent of borrow sites not available for comment and consideration. Mitigation measures are incomplete and inadequate, i.e., page VII-12, paragraph 7, typifies the total failure to develop meaningful mitigation.

2054 The aggregate extraction will directly impact the fisheries in the upper American River.

1934 Impacts associated with gravel removal were not addressed regarding fisheries. This needs to be evaluated adequately.

2096 We feel you have grossly underestimated the impacts of either dam option on fisheries in the upper American. We feel that strip mining the gravel bars would have a drastic effect on fisheries. Massive fish stranding at future low water levels will occur, as will large fluctuations in water temperatures. Landslides and erosion caused by inundation and denuded canyon walls would further reduce the fishery. We feel neither dam option is acceptable.

**RESPONSE:** The selected borrow site, alternative borrow sites and impacts from gravel mining are discussed in Chapter 7 of the EIS/EIR and in Appendix M. Chapter 7 of the EIS/EIR discusses the fact that there will be no significant direct or indirect impacts from the selected project on fisheries.

2115 Page DEIS 8-27, paragraph 3 - The first sentence is incorrect as stated. There would be direct impacts to fisheries habitat from the instream gravel mining and from increased sedimentation due to inundation events.

**RESPONSE:** Instream gravel mining is no longer proposed. See Chapter 3 and Appendix M for a more detailed discussion of the preferred mining site, the Cool Quarry, other alternative sites and the impacts associated with these alternatives. Although a small additional amount of sedimentation may occur as a result of inundation, any sediments would be washed downstream through the sluiceways in the dam and would not impact fisheries.

1934 Changes in management of the upper American River could easily occur which would greatly increase the fisheries within the

system. If this is not true, it should be addressed in the document.

**RESPONSE:** It is unclear what the intent of this comment is. Chapter 7 discusses the current and future fisheries resources in the project area with and without the project.

2066 Fishery resources are not adequately defined, delineated, evaluated, or discussed. Discussion is qualitative and incomplete. It does not include complex species listing. Impacts to identified fishery resources is incomplete and inadequate.

**RESPONSE:** The discussion of fishery resources contained in Chapter 7 of the EIS/EIR is based on information received from FWS in their Planning Aid Letters and Coordination Act Reports.

## FOLSOM REOPERATION

- 2099 Until the operation of Folsom Dam is also analyzed as part of the environmental assessment on flood control feasibility, the present assessment cannot be said adequate as a demonstrator of need for the project.
- 1103 We really need a 100-year flood project right away. We need to get Folsom reoperated. Flood protection will be impeded in Congress by this Auburn proposal.
- 1186 Why is it that the Folsom Reoperation Study is not to go out until this summer?
- 2064 Relationship between temporary reoperation and permanent reoperation as flood control alternative in Feasibility Report is unclear. Page I-6, paragraph 4, indicates environmental studies on temporary reoperation not complete. Was Special Study used as basis for environmental impacts of permanent reoperation? Are impacts for temporary reoperation different?
- 1970 Significant new information relevant to the findings of the ARWI EIS will be brought to light by the Folsom Reop EIS, so the two studies should be done more concurrently.
- 1970 Because information on environmental impacts from Folsom reoperation were not adequately incorporated into ARWI EIS, the impacts of the TSP and Folsom Reoperation have not been adequately addressed in regard to fisheries, vegetation, water supply, water quality, recreation, wildlife, endangered species, or socioeconomics.
- 2204 Impacts associated with the reoperation in Table B-2 is in some dispute because of the discrepancies in the recommended levee work coming from various elements in the Geotechnical Appendix. Some important technical reports are also missing from the package.
- 1930 You should wait for the results of the Folsom Reop EIS and study concurrently the issues posed in the ARWI study.
- 1831 The impacts of temporary and permanent reoperation should be evaluated and disclosed in the present DEIS, including additive, synergistic and cumulative impacts of interim and permanent protection alternatives.
- 1971 EIR must fairly assess the impact of Folsom reoperation for all alternatives, including their own as well as provide viable mitigation measures which can be integrated with all Congressionally authorized purposes of Folsom Dam.

- 2061 The Corps has repeatedly delayed completion and release of the Folsom Dam reoperation analysis. Without the detailed analysis of the effects of providing flood control for Sacramento by this reoperation, the people of the region cannot assess the current study.
- 2061 The Corps' decision to conceal the consequences of Folsom reoperation until after the ARWI EIS review on the dry dam negates the value of that review.
- 1829 The evaluation and choice of interim and permanent flood protection should be made at the same time in one DEIS.
- 2117 Page DEIS 8-51, paragraph 4 - Additional discussion is needed in the last sentence. You should add "fall flows would be increased in many years to evacuate the reservoir in preparation for the flood season".
- 2061 Your argument that the Folsom reop report is not pertinent because its data reflect current conditions is incorrect for two reasons: (1) Folsom reop could give the community time to effectively participate in and review the ARWI EIS, and (2) future upstream diversion levels are so speculative that they must be considered as a range of possibilities.
- 2061 It appears that Folsom reoperation could provide, at little actual environmental or economic cost, significantly enhanced flood protection for Sacramento for an extended period of time while the components of an acceptable permanent flood control system are developed.
- 2006 The discussion of permanent reoperation of Folsom Reservoir is mislabeled and misleading. This project component is not responsive to the authorizations that facilitated your agency's construction of Folsom structures. The discussions of operational considerations on pages III-9 to III-11 identify a lack of consideration of public trust responsibilities.
- 2008 Develop and report the hydrologic and environmental effects of the true reoperation of Folsom, taking public trust responsibilities into consideration before revenue-generating activities.
- 2187 The Folsom Reoperation Study is cited as a reference, its analysis and conclusions are frequently used, yet it is not available to the public. As a result the public and decision-makers are unable to review the data on which the Corps based its rejection of alternatives. This is clearly a violation of CEQA.

2176 It should be made clear in the report how reoperation of Folsom will affect these water agencies and their customers. San Juan Suburban Water District and its wholesale customers would have considerable costs associated with pumping if the reservoir at Folsom is low. The economic impacts of reoperation are inadequate.

2183 During the 1986 event, delayed releases from Folsom put Sacramento at serious risk. The report attempts to justify the delayed releases. The Corps willingness to permit erosion of required flood control protection for water supply and other concerns is contrary to flood control regulations re: Folsom. A proper analysis of flood risk should assume proper operation of Folsom.

RESPONSE: Reoperation of Folsom Dam and Reservoir could take any one of the following forms: "permanent" reoperation, "interim" reoperation, or "temporary" reoperation. Permanent reoperation is the measure included in the 150-year alternative, the 100-year (FEMA) storage alternative, and the 100-year (FEMA) levee/storage and spillway alternative. Under these alternatives, the space allocated to flood control in Folsom Reservoir would be permanently increased from 400,000 acre-feet (AF) to 650,000 AF, 590,000 AF, and 470,000 AF respectively. Under the 150-year and 100-year (FEMA) levee/storage and spillway alternatives, permanent reoperation would be combined with levee improvements in the lower American River, improvements in the Natomas area and modification of the Folsom Dam spillway. These improvements would require several years to complete. Under all three alternatives, however, the reservoir space permanently allocated to flood control could be implemented as soon after the (October 1992) authorization as administrative conditions and existing operations at Folsom would permit.

Each of the alternatives will take several years to implement. Under the 200-year, 400-year, and 100-year (FEMA) levee alternatives several years will be required to construct project features either along the lower American River, in the upper canyon, and in the Natomas area. Under the 100-year (FEMA) storage, and 100-year (FEMA) levee/storage and spillway alternatives several years will be required to implement since Natomas levee work must be completed. During the gap in time between authorization and completion of construction, occupants of the floodplain would remain exposed to the existing risk of flooding. This gap could be filled by an "interim" reoperation of Folsom Reservoir, which would continue until long term plans are in place. This measure is thus be tied to a specific long-term flood protection plan. Reservoir space in excess of 400,000 AF would be allocated to flood control only until such time as the long-term plan is in place.

Temporary reoperation is a stand-alone measure which would not be tied to or dependant upon any other permanent flood control alternative. Under this measure, reservoir space in excess of 400,000 AF would be allocated to flood control at Folsom for a fixed time. There would be no assurance that at the end of this time a permanent long-term flood control plan would be in place.

The environmental impacts associated with permanent reoperation are evaluated in the ARWI Main Report and EIS/EIR. These impacts fall into two categories: operational impacts and impacts related to growth in the floodplain. Because the increase in space allocated to flood control at Folsom would be permanent, and because the reservoir functions as part of the Bureau of Reclamation's Central Valley Project (CVP), the operational impacts of permanent reoperation would depend to a great extent on future CVP operations. Data provided to the Corps by USBR indicates that under current (1985) conditions, estimated firm yield would permit the CVP to fulfill its existing water contracts and to sell surplus water on a year-to-year basis. However, these data also anticipate a significant increase in demand by the year 2020. In order to meet this demand, the CVP would have to maximize its use of estimated firm yield and deliver all available supply. CVP operations under this maximum demand scenario constitute the baseline against which the long-term effects of permanent reoperation are measured.

With respect to the ARWI, future landuse projections in the floodplain used adopted local plans as a basis. Future growth in the floodplains is tied to actions likely to be taken by Congress at the conclusion of the 1992 legislative session. On November 7, 1992 the special Congressional legislation restricting FEMA's regulatory use of new base flood elevations in Sacramento will expire (see discussion in Chapter 4 of the EIS/EIR). If Congress takes no action to either renew this legislation or to implement a plan designed to provide immediate permanent flood protection along the American River, FEMA will promulgate a new Flood Insurance Rate Map (FIRM) for Sacramento with base flood elevations indicated. Because of the severity of these elevations in Natomas and elsewhere in the floodplain, development as contemplated under existing local plans would not be feasible.

Under the 150-year and 100-year (FEMA) storage alternatives, specific areas of the floodplain could be afforded at least a 100-year (FEMA) level of protection relatively quickly as soon after the authorization as administrative and operation conditions at Folsom could be modified. Under all of the alternatives, for all or specific areas of the floodplain, a gap would exist between authorization and completion of construction during which time occupants of the floodplain would have less than a 100-year (FEMA) level of protection. Under Corps schedule projections, Natomas construction would begin in 1996 and be complete in 1998 (see main report Figure IX-1). Under SAFCA local projects (see cumulative

impacts chapter of EIS) this schedule may be advanced to begin in 1993 and be completed in 1996. In any case, a gap of from 4 to 6 years would exist before protection facilities would be in place for the Natomas area. This gap could lead to the promulgation of a new FIRM by FEMA, in which case development would be temporarily interrupted. Or the gap could be filled by Congress either by extending the special legislation or by authorizing interim or temporary reoperation of Folsom until construction of the selected long-term plan is completed, thereby at least providing partial protection to the floodplain. The analysis of indirect impacts in the ARWI makes no assumption regarding the implementation of Folsom reoperation as either a temporary or interim operation. In order that growth-inducing impacts under all of the alternatives be evaluated, a conservative assumption was made that such impacts would begin in 1992. This assumes that FEMA would not promulgate a new flood insurance rate map in November 1992 when the special Congressional legislation expires.

At the direction of Congress, the Corps is currently studying the feasibility and environmental consequences of temporarily reoperating Folsom for a fixed period. This study evaluates the costs and benefits of increasing the reservoir storage allocated to flood control for 10 years and identifies the environmental impacts likely to result from such a project. Operational impacts are evaluated on the assumption that the CVP will be managed to meet current (1985) demand. The project is not considered to be growth-inducing since temporary reoperation alone would not permit growth to proceed in the floodplain. A draft environmental impact statement on temporary reoperation is anticipated in March 1992. A summary of the impacts being addressed in that document, including the cumulative effect of combining temporary reoperation with a subsequent permanent flood control project, is set forth below.

#### Operational Impacts of Temporary Reoperation

Temporary reoperation of Folsom would produce the same general impacts as permanent reoperation. These impacts include: losses of power and water supplies for Northern California; impacts on riparian vegetation along the lower American River; impacts to fisheries in the reservoir and in the lower American River; impacts to fisheries in the Sacramento River system due to adjustments in CVP operations; and impacts to recreation at Folsom. The extent of these impacts would depend on rainfall patterns during the 10-year term of the project. Since actual precipitation during this period cannot be accurately forecast, impacts must be identified based on a rough statistical representation of water year types (i.e., wet, above-normal, below-normal, dry, and critically dry water years). Real world impacts could vary considerably from this model. For example, a series of drought years such as has been experienced over the past 5 years would through normal operations keep Folsom Reservoir below the reoperation storage level and negate any



reoperation impacts. Similarly, in wet and above-normal years, the reservoir would be expected to refill quickly enough to minimize the effects of reoperation.

Notwithstanding the potential for unusual weather, reoperation is likely to result in lower levels in Folsom Reservoir causing reductions in the amount of power available on the Northern California power grid, and requiring purchase of replacement power to meet existing contracts. Reoperation would also reduce the firm yield water supply available to the CVP. During the 10-year term of the project, this reduction in water supply would not be large enough to affect existing firm yield contracts because these contracts are currently not fully utilized and there is thought to be additional capacity available for sale on a year-to-year basis. Reoperation would impair these interim sales, thus depriving the federal government of revenue and forcing potential buyers to look elsewhere for water.

Fluctuations in the level of Folsom reservoir could affect water temperatures in the reservoir and in the lower American River. Temperature changes during critical spawning and rearing periods could significantly damage the resident fishery in the reservoir and fisheries in the lower American River, including the fall-run chinook salmon. To create increased flood storage on a seasonal (November to March) basis, reoperation would generally require higher than normal releases from Folsom Dam in the fall. Refilling the reservoir in the spring would require lower than normal releases. These modifications in current flow patterns could reduce the riparian vegetation in the American River Parkway by altering the amount and timing of the water received by these plant communities.

Other impacts of temporary reoperation could include increased pumping costs to water districts taking their water from Folsom Reservoir; reducing recreational use of both the reservoir and the lower American River; and increasing the potential for damage to cultural resources found within the drawdown zones of the reservoir.

Because of the transient nature of temporary reoperation, none of the above impacts would likely be permanent or irreversible. Once the 10-year term of the project is over and "normal" Folsom operations are resumed, the mitigation measures adopted as part of the project should help to restore the resources in the reservoir and the lower American River to preproject levels.

#### Cumulative Impacts

The cumulative effect of temporary reoperation when combined with a long-term plan for flood protection along the American River would depend on the long-term plan. Plans involving permanent reoperation would magnify the impacts associated with temporary

reoperation for two reasons. First, permanent reoperation would significantly increase the risk of occurrence of adverse impacts, and significantly decrease the opportunities for regeneration of affected resources. Second, permanent reoperation would encounter a more stressful baseline condition due to projected increases in the demand for water and power.

Plans involving levee and channel improvements in the lower American River but without reoperation would permit water and power operations at Folsom to achieve preproject levels. However, these plans could have an adverse synergistic impact on wildlife habitat losses produced by reoperation. Once operation of Folsom Dam and Reservoir is returned to "normal," habitats and fisheries would tend to readjust to the previous hydrologic conditions. Higher spring flows would reestablish lost wetlands, and temperature conditions would permit more successful spawning of fish in the lower American River and in the reservoir. However, with implementation of levee and channel improvements, environmental changes would occur that would inhibit the reestablishment of these habitats. First, loss of vegetation from riprapping of the levees and banks would remove important seed sources and inhibit reestablishment of vegetation lost to reoperation. Second, the erosive effect of the higher flows associated with plans involving levee and channel improvements would adversely affect existing vegetation and worsen conditions in areas that may be naturally reestablishing after reoperation ends. The extent of these synergistic impacts would depend on the initial impact of the temporary reoperation.

Impacts related to operation of a flood control dam at Auburn would be removed in time and distance from the effects of temporary reoperation. When the flood control dam is completed, reservoir operations at Folsom would return to "normal." Over time, the riparian and instream habitats of the lower American River adversely affected by reoperation would readjust to the pre-reoperation flow regime, and reoperation-related impacts on water supply, hydropower, and recreation resources at Folsom caused by reoperation would abate.

2064 Appears that alternatives which reduce operation of Folsom for consumptive water supply were avoided. SWRQB is to review American River water rights, including those of USBR as current flow conditions are inadequate to protect public trust resources. In light of these uncertainties, imperative that flood control alternatives be sufficiently broad to provide full disclosure and reasoned decision-making.

RESPONSE: Three of the final seven alternatives evaluated would reduce operation of Folsom for consumptive water supply: the 150-year alternative, the 100-year (FEMA) storage alternative, and the

100-year (FEMA) levee/storage and spillway alternative. The costs, benefits, and environmental impacts associated with these alternatives are fully evaluated in the Main Report of the EIS/EIR.

2008 Develop and report the hydrologic and environmental effects of true operation of the Folsom facility, taking public trust responsibilities (e.g., protection of anadromous fisheries) into consideration before revenue generating activities.

2010 Reoperation of the Folsom facility, using the hierarchy of responsibilities described above, will provide adequate flood protection and environmental enhancement of the lower American River. Public safety and environmental goals would be achieved at a taxpayer savings of hundreds of millions of dollars.

**RESPONSE:** The purpose of the American River Watershed Investigation was to identify a flood control plan and its impacts. A series of alternatives, some of which include reallocating conservation storage at Folsom Reservoir to flood control storage, are discussed in detail in Appendix B, "Plan Formulation". Those alternatives, which include reallocation of Folsom storage, were examined using present USBR operating procedures for Folsom Reservoir, which incorporate protection of anadromous fisheries as one of several considerations.

2204 The results presented in Table B-2 indicate that in conjunction with Folsom reoperation to 650TAF, an objective release of 130,000 cfs would have a recurrence of about 100 years. This is a remarkable increase in floodflow protection from the present condition.

**RESPONSE:** Comment noted.

2103 Page 8-10, paragraph 4, sentence 6 - The statement that Folsom Dam is currently operated at a level above D-1400 is not correct. The USBR attempts to operate above the minimum D-1400 flow whenever possible, but will reduce releases to the minimum D-893 flows under adverse conditions.

**RESPONSE:** Comment noted.

2190 The analysis of the impacts of reoperating Folsom is completely unsupported. The analysis assumes that there

should not be and would not be any adjustment in operation for power and water supplies. The public should be given the information necessary to reach a decision on placing a higher priority on agricultural water or municipal.

**RESPONSE:** As discussed in Chapter 7 of the EIS/EIR, impacts to fisheries in the lower American River resulting from reoperation of Folsom Dam could be mitigated by reserving a block of water (60,000 acre-feet) for discretionary release by the Department of Fish and Game. However, the Corps has no authority over water operations at Folsom other than flood control. It is assumed that existing water contracts constrain any dedication of water to the Department of Fish and Game.

1103 We really need a 100-year flood project right away. We need to get Folsom reoperated. Flood protection will be impeded in Congress by this Auburn proposal.

**RESPONSE:** Comment noted.

## **HAZARDOUS AND TOXIC WASTE**

- 1896 Describe more fully what we can expect in the way of hazardous and toxic wastes resulting from construction.
- 1977 The DEIR should disclose the types of hazardous substances to be used and the impacts they could have on the environment and they should be mitigated.
- 1931 Hazardous substances used in construction needs to be disclosed. Hazardous substances found during aggregate mining need to be disclosed and the impact on the environment and planned mitigation.
- 2132 The discussion of hazardous and toxic wastes is adequate for impacts on existing waste sites. However, no mention is made of possible generation of wastes during project construction.
- 2209 No site-specific studies to investigate possible toxic problems have been completed. The field reconnaissance and review of aerial photos must be done now, not during design phase. The results could require major changes in project component location or in costs or methods of construction, all of which would alter the environmental analysis.
- 2210 The EIS conclusion that there are no direct construction impacts pertaining to toxic or hazardous material is unsupportable since no exploration has been done and the EIR contains no mitigation measures.
- 1896 Describe more fully what we can expect in the way of hazardous and toxic wastes resulting from construction.
- 1931 Substances used in construction and aggregate mining need to be disclosed. In addition, impacts of hazardous and toxic materials need to be addressed and mitigated.

**RESPONSE:** Please refer to the revised Chapter 5, Hazardous and Toxic Waste, of the EIS/EIR. Hazardous or toxic materials needed to operate construction equipment, such as gasoline, diesel, and oil, may be handled at the construction site. Contractors will be required to submit a plan for proper handling and management of these hazardous materials to prevent accidents that threaten the safety of the workers and other people as well as the water quality of the American River. As part of the job specification, the contractor will be required to have a plan for proper disposal of these wastes and storage of all construction materials, with water quality protection of the American River as the primary objective.

1806 The EIS does not discuss potential mercury contamination due to aggregate mining for dam construction. A monitoring program should be implemented in case mercury is discovered during mining.

2209 Please explore the possibility that removal of gravel from the river for borrow material will expose pyrite to water and air, creating sulfuric acid. Discuss the impacts of such occurrences.

**RESPONSE:** Please refer to the revised Chapter 5, Hazardous and Toxic Waste, of the EIS/EIR and the revised project description. The potential for mercury contamination due to aggregate mining is small. The gravel bars have been eliminated as the source of aggregate for the dam. Additionally, because of past gold mining in the Sierra Nevada, it is very likely that the sandbars in the American River contain mercury. However, the majority of the mercury is in its inorganic form, which is insoluble in water. This is supported by findings of various studies and water analyses from several water surveyors who found no detectable levels of mercury in waters of the Sierra Nevada. In certain cases, water downstream from a mining operation was found to contain no detectable concentration of mercury even though mining occurred in the active flowing water and the aggregates contained some levels of mercury (e.g., Lake Combie in Placer County along the Bear River).

1807 The possible cumulative impacts of synergistic action passing pH and thus liberating more methyl mercury.

**RESPONSE:** Reservoirs, lakes, and the Delta are sediment traps, and, since mercury attaches itself to these sediments, it will likely accumulate where sediment accumulates. The conversion of inorganic mercury to methyl mercury is enhanced by lowering the pH (more acidic). This statement is the conclusion of a study titled, "Little Rock Lake Acidification Project" in Wisconsin, in which they compare the methylation of mercury in a lake where half was acidified and the other half was unaltered.

It is not expected that the pH of the water behind the proposed dam will become acidic during or after the construction. Therefore, the rate of methylation of the mercury is not expected to increase.

Please refer to the revised Chapter 5, Hazardous and Toxic Waste, of the EIS/EIR.

1986 All hazardous and toxic waste sites within the FEMA 100-year floodplain should be included in the EIR. Included should be

such sites in downtown Sacramento as the S.P. rail yards and the old PG&E power station near the west end of Richards Boulevard. One positive impact of the TSP would be the removal of these sites from the floodplain. No action would have the opposite impact of allowing sites to flood and spread contaminants.

**RESPONSE:** Please refer to the revised Chapter 5, Hazardous and Toxic Waste, of the EIS/EIR and to Appendix B, Plan Formulation, for an expanded discussion of the no-action alternative. The Southern Pacific Railroads are located on an elevated area which is outside of the 100-year floodplain. Only those known sites located within the 100-year floodplain are discussed in Chapter 5. The PG&E power station located at the end of Richards Boulevard has been the subject of ongoing clean-up actions. The State Department of Water Resources intends to construct its operations headquarters at this site and is involved in the clean-up efforts.

2209 The Corps should develop its contingency plan now and permit public comment on the plan. Otherwise, the agency cannot conclude that there are measures available to mitigate any hazardous and toxic impacts.

**RESPONSE:** The contingency plans will be developed as part of the detailed mitigation plan during the design phase of the project.

2251 The Corps has done an inadequate property assessment and review of aerial photographs for potential hazardous and toxic wastes site. This cursory level of environmental scrutiny is inappropriate and a violation of CEQA.

**RESPONSE:** The list of dischargers on the Central Valley Regional Water Quality Control Board and the State of California Hazardous Wastes and Substances Sites List dated November 1990 were reviewed to determine hazardous waste sites near the project area. Only two sites may be classified as hazardous waste sites: (1) the closed Auburn landfill, and (2) the Auburn State Recreational Area underground tank leak.

The Auburn sanitary landfill accepted hazardous phenolic wastes, which polluted the ground water. These wastes were subsequently removed from the landfill and disposed of at a hazardous waste landfill. Ground water monitoring showed a decrease of phenol from 650 mg/liter in August 1979 to 0.002 mg/liter in December 1983 and nondetectable in the last few years. The landfill has since been removed from the State superfund list. It was closed in 1982 and is now a transfer station. The site is about 5 miles north of the proposed damsite.

The Auburn State Recreation Area operates a 1,000-gallon, unleaded gasoline, underground tank. The tank failed the pressure test and investigation is ongoing to determine if it has leaked gasoline into the ground.

It is unlikely that other hazardous waste sites other than those listed by the Regional Board and the California Hazardous Waste and Substances Sites List are in the area. Because of steep terrain and heavy recreational use of the American River, illegal hazardous waste sites are unlikely.

2251 The HTW site inquiry was inappropriately geographically narrow. The inquiry should be expanded to evaluate potential sites within the dam inundation area.

2251 Chapter 5 does not discuss the indirect impacts associated with potential HTW sites.

2133 Indirect impacts discussion is less than satisfactory.

2165 The listing of permitted hazardous and toxic waste/generator sites is very incomplete.

2165 This review should include historical aerial photo review for the previous potential hazardous/toxic waste substance presence evaluation.

**RESPONSE:** Chapter 5, Hazardous and Toxic Waste, of the EIS/EIR has been revised to include a discussion of the potential HTW impacts to future development and growth in the area and to discuss additional review work performed.

2209 No site-specific studies to investigate possible toxic problems have been completed. The field reconnaissance and review of aerial photos must be done now, not during design phase. The results could require major changes in project component location or in costs or methods of construction, all of which could alter the environmental analysis.

**RESPONSE:** In an effort to identify hazardous or toxic sites, the Corps of Engineers, the Sacramento Flood Control Agency, and their consultants conducted literature search of hazardous or toxic waste sites, preliminary field review and a cursory reconnaissance in the areas where project construction or construction-related activity would occur. Further field reconnaissance and review of aerial photos of the construction area will be made during the design phase of the project construction areas or right of ways. A site assessment will be performed to further evaluate the risk of



contamination for each improvement or borrow site prior to project construction. The Corps will develop a contingency plan identifying a responsible agency and outlining a course of action in the event that hazardous or toxic waste sites are uncovered during construction.

2209 Please review the Hazardous Substance Management Plan to determine whether or not it contemplates and plans for the industrial development of Natomas and the lower American River areas that will be induced by the project.

**RESPONSE:** The Sacramento County Hazardous Substance Management Plan (HSMP), which was adopted by the County of Sacramento and the City of Sacramento in 1989, is discussed in revised Chapter 5 of the EIR/EIS. This plan contains specific policies, programs and siting criteria for sites handling toxic waste and hazardous materials which will apply to future development in Natomas and the lower American River. The plan policies provide for general plan consistency and incorporation into local zoning ordinances. The HSMP provides for reassessment of the plan to take place every four years. The plan will not have considered hazardous waste management needs associated with induced growth projected for the purposes of this analysis. When the plan is updated in 1992, a reassessment of future hazardous waste management needs will need to occur based on local general plan updates which have occurred since plan adoption.

2210 The EIS conclusion that there are no direct construction impacts pertaining to toxic or hazardous material is insupportable since no exploration has been done and the EIS contains no mitigation measures.

**RESPONSE:** Chapter 5, Hazardous and Toxic Waste, of the draft EIS/EIR has been revised to incorporate direct construction impacts pertaining to toxic or hazardous wastes and materials.

1806 The EIS does not discuss potential mercury contamination due to aggregate mining for dam construction. A monitoring program should be implemented in case mercury is discovered during mining.

2209 Samples of tailings should be gathered now and analyzed for pollutants and trace metals to determine whether they can feasibly be used in dam construction.

2209 Please explore the possibility that removal of gravel from the river for borrow materials will expose pyrite to water and air, creating sulfuric acid. Discuss the impacts of such occurrences.

**RESPONSE:** In response to the many comments received on using aggregate from the river bars for construction of the dam, the studies of alternatives for procurement of aggregate were augmented and alternatives to the river bars developed as the preferred source. This final report recommends the existing Cool Quarry as the preferred source. The studies can be found in Appendix M and a discussion of the preferred aggregate source can be found in Chapter VII. Impacts and mitigation from this operation can be found in various chapters of the EIS/EIR but particularly in Chapter 6 (Drainage and Water Quality), Chapter 7 (Fish and Wildlife), and Chapter 11 (Transportation).

2165 This review should include historical aerial photo review for the previous potential hazardous/toxic waste substance presence evaluation.

**RESPONSE:** Please refer to response to Comment #2251.

2165 The listing of permitted hazardous and toxic wastes/generator sites is very incomplete.

**RESPONSE:** The section regarding Hazardous and Toxic Waste has been augmented to respond to this comment.

## **HIGHWAY 49 RELOCATION**

- 1825 Will Highway 49 be closed during construction? How long? What impacts on emergency access? What will growth-related impacts be? What effect will the shortened commute time have on El Dorado and Placer Counties?
- 1936 How will traffic be rerouted and managed during Highway 49 construction? Will you close it and for how long? Where would you reroute traffic to? Will there be impacts to Salmon Falls Road? What about emergency access? How will you mitigate these impacts?
- 1979 How will traffic be rerouted and managed during the relocation of Highway 49? What about mitigation?
- 2001 All impacts related to relocation of Highway 49 and Ponderosa Way must be evaluated.
- 2161 Because Highway 49 is the only major roadway serving rural areas, it should not be closed during construction.

**RESPONSE:** Highway 49 will be replaced because of its importance as a State highway. Slight disruption of local traffic will occur with either the "low bridge" alternative proposed in the Selected Plan or the three "high bridge" alternatives which the State will study as part of CALTRANS routed option studies conducted independently. A specific plan for traffic control and access for local residents will be developed during final design. A detailed description of the "low bridge", alignment and each of the "high bridge" alignments along with the impacts on future growth in the area is described in Chapter 11, Transportation, Chapter 15, Socioeconomic, and Chapter 17, Cumulative Impacts.

- 1833 The alternatives analysis for the Highway 49 relocation has been inappropriately been deferred to CALTRANS and the local sponsors. Relocation impacts have not been analyzed and disclosed.
- 1656 It is legally inadequate to state that you are not sure how the highway will be relocated. It is impossible to determine impacts due to the inadequate project description.
- 1860 The Corps plan promises unnecessary future expenditures to Placer County residents as a result of the Hwy 49 relocation, then once again when the multipurpose dam is built.
- 2132 The project description and subsequent discussion is inconsistent. In Chapter 2, page 4, "Project Features", the

Highway 49 relocation is treated as an integral component of the TSP. However, in Chapter 17's discussion of cumulative impacts, the relocation is treated as a separate project and impacts of "no project" are ascribed to flooding due to the functioning TSP.

**RESPONSE:** The Highway 49 replacement proposed by the Corps is an in-kind replacement of the existing facility. All costs associated with the proposed in-kind replacement of the existing Highway 49 bridge and roadway would be paid by the Corps and the local cost-sharing partners, and is reflected in the cost and benefits analysis. The State, through the Department of Transportation, will study, independent of the ARWI, during the design phase, alternatives to relocate the highway in a location which is compatible with the ultimate route to be adopted by Caltrans for Highway 49. This is discussed in the Cumulative Impacts Chapter. The need for replacement of Highway 49 is discussed in more detail in Appendix B.

1212 The bridge relocation is viewed as an indirect impact with no significant impact on traffic. Where is the analysis for this nonsensical conclusion? Any change will definitely have a long-term, negative impact.

1675 By linking Highway 49 and Interstate 80 there will be more development in El Dorado County.

1849 Main Report, Plate 21 - Removing tight switchbacks from Hwy 49 potentially reduces commuting time and the Corps should outline why this may not induce growth.

1931 Growth-inducing impacts relating to the highway relocation need to be addressed. NEPA and CEQA require that you disclose how better access will affect land use in the area.

1936 The statement that the relocation would result in no impact to El Dorado County is false. Realignment will increase the capacity of this stretch of Highway 49.

1968 DEIS/DEIR does not include any information on what the growth-inducing impacts will have on El Dorado County.

**RESPONSE:** A detailed description and analysis of each alignment's impacts on future growth in the area are described in Chapter 11, Transportation, Chapter 15, Socioeconomic, and Chapter 17, Cumulative Impacts of the EIS/EIR.

1968 Study fails to consider effects of the relocation. It assumes that the State of California route studies and therefore responsibility for indirect growth-inducing impacts, and fails to incorporate the effects into mitigation costs and planning, even though as a project cost there is \$100-130 million in project funding for that relocation as a subsidy for growth-inducing impacts.

**RESPONSE:** The Selected Plan includes mitigation for direct project impacts, as presented in Chapter 22 of the EIS/EIR. Any requirements to mitigate for impacts of induced future development are a responsibility of State and local government. The environmental analysis for the Selected Plan has determined that there are no indirect impacts from the replacement in kind of the Highway 49 bridge. The study and environmental documentation of "high bridge" alignments which the State intends to perform during the design phase of the Auburn Flood Control Dam Project will determine indirect impacts for those "high bridge" alignments and propose appropriate mitigation.

2261 The draft document needs to identify the environmental impacts of this relocation. Due to the growth-inducing potential of this highway relocation, the secondary impacts to wildlife in the Pilot Hill-Cool area need to be developed and reported.

**RESPONSE:** A detailed description of the impacts to wildlife for each alignment is discussed in Chapter 17, Cumulative Impacts, and Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR.

2250 The analysis in Chapter 11 of the DEIS/DEIR defers the discussion of direct environmental impacts of relocation of Highway 49 until "detailed route adoption studies are underway".

**RESPONSE:** Additional analysis has been presented in Chapter 17, Cumulative Impacts, of the EIS/EIR.

2075 Why has the Highway 49 routing directly on the dam not been considered as an option? Wouldn't this save over \$100 million? Is there a structural problem, and if so, what is it?

**RESPONSE:** The Corps has a policy of not routing a highway/bridge across a flood control dam as a matter of public safety.

678 A small coffer-type dam would eliminate the need for a new highway bridge across the river.

**RESPONSE:** A cofferdam is a temporary dam used only during construction of the permanent dam to control riverflows. The cofferdam built in the 1960s for the multipurpose dam construction project was breached during the February 1986 flood.

1079 Referring to DEIS 14-16, it states that if the counties do not maintain "historic" 49 route then access will be eliminated to confluence area. This is wrong. Maintenance of this road should be the Corps' responsibility and figured as an "after project cost".

1914 When the new bridge is built, you are going to sever the old 49 route which to me has always been the main access to the canyon.

**RESPONSE:** Please refer to additional information and mitigation proposed in Chapter 17, Cumulative Impacts, of the EIS/EIR under the section titled Recreation.

1951 Chapter 17, evaluation of Hwy 49 relocation doesn't include wildlife impacts. As this is mentioned in the analysis of the multipurpose facility, there should be consistency.

**RESPONSE:** Please refer to additional information in Chapter 17, Cumulative Impacts, and Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR.

605 According to the Corps' projections, the existing Highway 49 bridge would be submerged for only an average of two days per year. Why spend approximately \$125 million to reroute it?

**RESPONSE:** The factors contributing to the decision to relocate Highway 49 include inundation potential, the existing and future need for the highway, economic dislocation to users of the highway, engineering considerations, and public safety factors. See Appendix B for a more detailed discussion.

2243 The statements regarding the period of inundation of Highway 49 which would result from construction of a flood control dam conflict with statements made in other sections of the report

regarding the period of inundation and the resulting environmental impacts.

**RESPONSE:** Please refer to Appendix K where additional information on the inundation frequency curves is shown. Impacts from periodic inundation are discussed in Chapter 7 of the EIS/EIR and in Appendix Q.

## **HYDROLOGY**

2124 What about a return period for the precipitation? ('86 flood).

**RESPONSE:** For every flood, storm depths (and their respective return period) vary throughout the basin. The frequency of a storm doesn't always correlate with rainfall frequency due to differences in soil moisture, snow cover and precipitation distribution for each storm. Runoff is the main parameter that we looked at in this analysis.

2124 Did this storm center over the basin differently than others?

**RESPONSE:** Every storm centering over the basin is different; no two are alike. The only storm analysis the Corps used was for the probable maximum flood event used for spillway designs.

2124 You mention the antecedent conditions were dry but neglect to mention that when the basin is wet, which in February means snow covered, the surface would be much cooler which lowers the dew point, reduces the uplift and decreases the precipitation.

**RESPONSE:** The soil can be dry and have a snowpack on it. When the snow starts to melt, the ground initially will absorb the majority of the snow water. This was the soil condition in 1986.

2124 You neglect to mention that this was an unusually warm storm so that rain fell at elevations where snow would normally fall, thereby producing more runoff than normal.

**RESPONSE:** The February 1986 storm had these characteristics and so do all the major American River flood-producing storms. Large floods originating from high-elevation watersheds often are at least partially attributable to warm storm conditions.

2125 It appears that the return interval of the storm sequence is much higher than 70 years. I suggest you complete a hydrometeorologic analysis of this event to determine its rarity.

**RESPONSE:** The frequency of the 10-day storm varied from approximately a 30-year event near Folsom, to over a 200-year event



at some locations at high elevations. This is why the Corps did not use a rainfall-runoff analysis, but instead used the runoff record of the Fair Oaks gauge to determine the various frequency runoff hydrographs.

2125 Third paragraph on III-9 - states "because events greater than 100 years generally occur on a saturated basin and all flood control space is already occupied". This is unlikely and in addition to the statements above, consider the joint probability.

RESPONSE: This sentence explains an "assumption" that we used in our analysis of storage space that may be available in upstream reservoirs. To experience an unusual and extreme event requires the basin to be extremely wet, which means several small storms have occurred which caused the soils to become saturated and the upstream reservoirs to be filled. This assumption has nothing to do with joint probability.

2125 I question the assumption that the Sacramento and American Rivers flood with similar return intervals at the same time. For this data 86 years is too short. I am sure that both rivers experience storm runoff at the same time, it is very unlikely that both will experience 100-year floods from the same system.

2125 Assumption that the rivers crest at the same time with the same frequency storm again brings in the question of joint probability which decreases the frequency of the event for which you are designing.

RESPONSE: The assumption that both rivers will experience 100-year floods at the same time is based upon evidence gained from the 1986 flood, where the frequency of the Sacramento and American Rivers at their confluence each was about a 70-year event. Both river systems are impacted by reservoir operations, which historically has affected the timing of the peak flows at the mouth of the American River. We assume there will be no concurrence on flood events above a 100-year event. The Selected Plan design is to protect against a 200-year event on the American River irregardless of the concurrent flood event on the Sacramento River.

2081 Questions actual flood threat and cites other circumstances prevailing in 1986 flood (i.e., op. of Folsom) requests Corps make public following information from 1986 flood: Flows at Auburn cofferdam; flows on South, Middle, North Forks of

American River, outflows from Folsom; flows in Sacramento River, pertinent flows on American River tributaries. Data should be analyzed by outside agency to determine actual flood danger to Sacramento.

**RESPONSE:** The February 1986 flood was just one historic event in the entire historic record that was analyzed. The new frequency analysis update shown in the Feasibility Report indicates that runoff for extreme events is now much greater than originally conceived in the 1940s when Folsom was designed. Data from the 1986 storm are included in the report.

2163 The PMF study for the Auburn Dam basin on excess precipitation for runoff showed excess is 38.32 inches. Should this number be lower to account for any losses?

**RESPONSE:** Yes. Correct value of excess should be 31.13". This has been corrected.

2163 How reasonable is the unit hydrograph developed from Los Angeles Valley S-graph applied to Sacramento area? Are the respective watersheds similar considering the distance between them?

**RESPONSE:** The S-graph is a dimensionless hydrograph reflecting certain types of basin features, such as slope, size, shape. It is reasonable for the watersheds to which it was applied. It was checked and verified by reproducing historic events on American River Basin. The S-graph provides hydrograph shape, but other parameters that are particular to a basin (like basin roughness) are input into the computer program used to calculate the unit hydrographs for a particular basin.

2164 Does the hydrologic methodology used compare to the Placer County Flood Control District hydrology?

**RESPONSE:** Yes. We use standard nationwide hydrologic methodologies.

2164 The almost two-fold flow rate increase from the dam failure scenario (1,070,000 cfs vs 577,000 cfs) suggests the importance of whether a dam fails over excessive rainfall or loss rate. It would be a good idea to examine the probability of dam failure and the inherent breach simulations.

**RESPONSE:** The upstream dam (L. L. Anderson) was assumed to fail when it overtopped in the analysis of the probable maximum flood which was used to size the spillway. This analysis did not enter into the flood pool sizing for the Selected Plan.

2163 Appendix K - Why was 1983 and 1986 flood information not used - Folsom Dam flood analysis - like all the other hydrology analysis?

**RESPONSE:** Spillway adequacy studies were conducted in 1980 prior to the 1983 and 1986 floods.

1924 Report doesn't adequately describe reservoir routing time for average of maximum credible storm frequency within the basin. Review indicates if all reservoir gates open and 70,000 cfs discharged from the reservoir, it would take at least 7 days to discharge full reservoir capacity. Retention of additional water will require an appropriate right.

**RESPONSE:** Frequency and duration of flood elevations in the flood pool of the project are shown in the Reservoir Regulation Appendix. The time required for the 200-year flood to drain from a 200-year project is approximately 8 days. Water rights are not required for flood control projects.

2 The report proposes a 3,000-foot-long channel with a 3,000 cfs capacity leading to a pumping station with a 700 cfs capacity. This means that there will be extensive flooding north of Dry Creek.

**RESPONSE:** The 3,000 cfs capacity channel is sized to convey the peak flow from the Pleasant Grove Area. The volume of the overflow will be smaller than the storage area available upstream of the 700 cfs pump. The 700 cfs pump is intended to assist in reducing the volume but not to pass the largest flow. The ponded water elevation will be less than the 1986 levels.

2 I disagree with the statement that the "design" capacity of the American River is 115,000 cfs. Downstream of the NEMDC, the levees were designed to take 180,000 cfs. In addition, above the NEMDC the north levee was designed to provide 115,000 cfs with 5 feet of freeboard or 152,000 cfs with 3 feet of freeboard, whichever was higher.

**RESPONSE:** Levees along the lower American River have been constructed and modified over many years. Originally, near downtown Sacramento, the levees were thought to be designed to accommodate a peak flow of 180,000 cfs with an overbank area in what is now the developed Arden Avenue-Howe Avenue area. Today, with the existence of Folsom Reservoir, floodflows can be attenuated for a much longer duration but the levees can pass safely a sustained flow of only 115,000 cfs. After the February 1986 flood event, extensive geotechnical evaluations of the levees were accomplished. It was determined that there are reaches which will exhibit structural deficiencies with sustained flows as low as 130,000 cfs. Accordingly, the levees along the lower river are believed to be able to safely accommodate a sustained flow of only 115,000 cfs.

- 2 To my knowledge, never has the Corps of Engineers suggested a levee would fail if floodwaters encroached into the freeboard (page III-15). I suggest you review EM 1110-2-1601 and C.W. Engineer Bulletin 54-14 for the purpose and meaning of freeboard.

**RESPONSE:** For this study, the criteria for failure was developed based on geotechnical investigation and with consideration of the performance of the levees in 1986. The Economic and Geotechnical Appendices discuss the criteria in detail.

- 1807 I question the reliability of hydrological forecasting and flood frequency and magnitude in light of the unpredictability of global climate changes. A plan for a 400-year event may only defer a catastrophe for only five years.

**RESPONSE:** There are ongoing studies and discussions of impacts associated with global climate changes. There is no universal agreement. The Selected Plan has been designed using the known historical runoff record and accepted and conservative methods, including an expected probability analysis. Based on the best available information and our analysis, we believe that the current Selected Plan will provide 200-year flood protection to the study area.

- 1803 In a recent class on hydrology I learned that dams normally do not help the environment. Nutrients downstream are washed away and the dam prevents sediment from replacing it.

**RESPONSE:** Dams do change the flow regime downstream. The Selected Plan dam will pass most of the low sediment load which reaches it

and will have an insignificant impact on sediment and nutrient transport. Environmental impacts and mitigation for different environmental resources are described in the EIS/EIR.

1808 In February 1986, almost 3 feet of rain fell in a ten-day period. Your 400-year plan appears to be designed to control a flood whose dimensions are seven times that (894,000 acre-feet as opposed to the 124,000-acre-foot diversion dam that was in place in 1986). That would mean that a 400-year storm would require 21 feet of water in a 10-day period. That seems like an unlikely occurrence.

RESPONSE: The frequency of the 10-day storm varied from approximately a 30-year event near Folsom, to over a 200-year event at some locations at high elevations. This is why the Corps did not use a rainfall-runoff analysis, but instead used the runoff record of the Fair Oaks gauge to determine the various frequency runoff hydrographs. The storage to precipitation extrapolation in the comment is not proper because it doesn't include outflow. Appendix K gives a three-day precipitation amount of 36.3 inches above Auburn Dam for the much larger probable maximum flood.

2201 Even if there is a justifiable reason for a 6 ft. freeboard parameter, Table 2 of Chapter M-2 indicated that at 130,000 cfs no levee sections exceeded this 6 ft. parameter threshold by more than 1 foot and that these were along a 2.3 mile section of only the right levee (above Watt Bridge to below Howe Bridge on the north side). How do the levee enlargement actions proposed in Chapter M-3 conform, both in terms of height and extent, to the findings in Chapter M-2? Which is right? Why?

RESPONSE: The reference to a 4-foot increase stated that if the levees were raised as much as 4 feet, they would still be stable based on analysis given in the referenced chapter. This chapter goes on to give design details to be used if the levees are raised. Actual work required to make the lower American River levees safe for a 130,000 cfs release rate, including reaches of levee which must be raised, is described in Appendix N, Design and Cost Estimates, Levee Alternatives Chapter, 100-Year, 130,000 cfs Alternative Section. Analysis done in Appendix M, Geotechnical, was not used to establish reaches of levee raising. The geotechnical work was to determine areas of levee instability, measures to correct these instabilities, and erosion problems during increased release rates.

2179 I have previously criticized the Corps' hydrologic analysis as exaggerating the flood peak and volume relevant for determining flood protection requirements for Sacramento. The report does not effectively respond to these criticisms but does provide some additional information that tends to substantiate them.

**RESPONSE:** The hydrologic analysis used and presented in Appendix K of the report is appropriate for design of a flood control project for an urban area protected by high levees. For responses to specific items of concern, see the associated response in Appendix K, which discusses Corps vs FEMA Methodology, available upstream storage, and efficient use of Folsom Reservoir.

2202 On what basis was the decision that having the 200- and 400-year events happen everywhere was not likely? What factual data base with respect to regional storms and floodflow concurrence was it determined that notable disconcurrent floodflows for the very largest of regional storms was more probable than concurrent floodflow peaks?

**RESPONSE:** Sacramento River in the vicinity of Sacramento is hydraulically very complex. There are several reservoirs upstream and numerous weirs which divert the flows out of the Sacramento River channel. Trying to develop a coincident frequency analysis of this flood control system in itself is very difficult, if not impossible, considering the state-of-the-art methods available to perform this type of analysis in the water resources field. However, based upon historic evidence, and also on previous studies done for the upper Sacramento River Basin, we came to the conclusions presented in Appendix K. Normally, when trying to develop concurrent flows and frequency of events, the conservative approach is taken to ensure public safety because of the many unknowns involved with any analysis. This is especially true when working with a short history of flood events. The Corps, when calculating stages for various frequency events, was careful not to understate the magnitude of the stages in the Sacramento area where levees are relied on so heavily to protect the lives and property of the city. Current nationwide accepted methodology allows for precipitation intensity to diminish with areal extent.

2200 Pg M-2-10 thru M-2-11 - The levees of the lower American River were evaluated at flows of 115,000, 130,000 and 180,000 cfs using three parameters; minimum freeboard of 3.0 feet, maximum hydraulic head of 6.0 ft, and a maximum seepage exit height of 0.6 ft. The assessment used 44 x-section locations to review the levees. The conclusion was that at 115,000 cfs no parameters were exceeded and all the levee freeboards were

within the design criteria of 5 ft. At 130,000 cfs neither design (5 ft.) nor assessment (3 ft.) freeboard parameters were exceeded at any levee location but there were 5 levee locations where other parameters were exceeded; hydraulic height parameters were exceeded by 0.0 to 0.9 ft. and seepage exit heights parameters were exceeded by 0.3 to 0.6 ft. At 180,000 cfs many of the levee locations exceeded one or more of the 3 parameters (see Table 2).

- In fact at 130,000 cfs one of the locations did not exceed the prescribed parameter threshold; it matched the specific maximum value without exceedance. Therefore, only four locations exceeded the parameters at this discharge.

**RESPONSE:** Remedial work required for a 130,000 cfs release rate in the lower American River is described in Appendix N, Design and Cost Estimates, Levee Alternatives Chapter, 100-Year, 130,000 cfs Alternative Section. Even though the one location at 130,000 cfs did not exceed the parameter, it was close enough to warrant attention. When an urban area depends upon high levees for flood protection, it is imperative that all potential weak spots be identified and fixed. To ensure a conservative and safe design, this marginal location was included as a potential weak spot and included in proposed remedial fixes for all alternatives which included a 130,000 cfs release rate as a measure. Typically, locations with marginal problems contained simple fixes and the reaches identified for work were short.

2179 The Corps has not satisfactorily explained the use of a flood frequency plot shown in Chart 4 which is identical to one developed in 1986 using a regional flood frequency program not approved by FEMA. Also, the Corps' estimate of '86 unimpaired flow peak is erroneous because it failed to account for the water stored behind the cofferdam. Use of this number exaggerates the estimates of peak flows and conveys the mistaken impression that 1986 had a record one-day inflow.

2184 The Corps' rationale for using expected probability is the asserted need to adopt conservative assumptions to ensure adequate sizing of flood control structures. This shows the Corps' policy to use expected probability has an underlying bias towards reservoir flood control storage over a series of incremental cost-effective improvements in the present system. The use of expected probability increases the estimated flood risk by 15 percent.

2108 Clear explanation of the differences between the FEMA and Corps 100-year level is needed. The explanation should include discussion with specific example of how each is

calculated and a table comparing the various flood control levels using FEMA vs Corps calculation methods.

2258 In calculating flows for events larger than the 100 year event, the Corps has utilized the "expected probability" methodology. FEMA guidelines explicitly state that the expected probability will not be utilized in the calculation of flood flows. As a result of this method, calculated flood flows are 30% higher for a 100 year event than FEMA method calculations. The Corps has not presented an analysis of the other alternative using a federally approved methodology.

**RESPONSE:** For a discussion of Corps (expected probability) vs FEMA methodology, see associated response below. The Corps has included in its analysis the storage provided by the cofferdam. We have also corrected our tables to indicate that the one-day peak inflow is not the record. However, the six-day volume for this storm was the record. See response associated with "Flood Operation of Folsom in February 1986".

**Corps vs FEMA Methodology:** The objectives of the two programs are different. The objective of the Corps program, consistent with the "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies", dated March 10, 1983, is to formulate individual projects in a way that maximizes the net economic development benefits specific to the project and consistent with national environmental criteria. A specific level of protection in a Corps project is not an objective; rather, it is the inherent result of a series of calculations designed to determine the optimum project size. On the other hand, the objective of the National Flood Insurance Program (NFIP) is to encourage voluntary participation of communities nationwide in a program to adopt local ordinances to manage and regulate land use to reduce future flood risks. In exchange, the NFIP makes flood insurance available within participating communities as a financial protection against flood losses which do occur. FEMA's policies are an "actuarial standard" meant for purposes of flood insurance and are not necessarily related to appropriate levels of physical protection.

Both the Corps and FEMA use accepted procedures as outlined in the Water Resources Council Bulletin 17B, "Guidelines for Determining Flood Flow Frequency", dated March 1982. These procedures were adopted by the Council for use in all federal planning involving water and related land resources. Bulletin 17B described the use of expected probability but made no recommendation about whether the concept should be used. The decision was left to individual federal agencies.

For long periods of record, there is essentially no difference between the two methods. The difference between the two methods is measurable for shorter periods of record when estimating the



discharge for a given frequency flood. However, the differences are always within statistical confidence limits. For short periods of record, a large uncertainty exists in the estimate of the discharge frequency relationship. The expected probability method takes this uncertainty into account; the computed probability method does not. As a result, the number of events which exceeds a specific frequency flood discharge determined using computed probability is greater than the number of events which would exceed the same frequency flood discharge computed by the expected probability method. A consequence of this use of expected probability is a reduction in the risk and losses incurred with an exceedance event. Analysis and statistical tests using recorded data indicate that the expected probability method provides a better estimate of the actual probabilities. Corps policy is that since we are a public agency concerned mainly with large floods which seriously threaten life and property, it is important that flood hazards not be understated. For this reason, Corps policy is to use the expected probability adjustment where applicable in its formulation and design.

The following discussion was provided by FEMA: "The question arises as to which is the 'better' method to be used. To answer this question FEMA initiated a review by the National Academy of Sciences (NAS) in 1978 of the two probability methods. The NAS responded by indicating that precise answer is dependent upon what use is to be made of the application of the results of the two probability methods. The NAS recommended that FEMA not use the expected probability adjustment for estimating peak flows in the flood insurance studies of communities located in riverine areas. For floodplain management purposes, which include the establishment of regulatory base flood elevations and floodways which participating communities must adopt and enforce, the computed probability curve is better suited for NFIP use. Since the computed probability method is always close to the long-term probability at any individual site, it is the least biased estimate for regulatory purposes. The discharge which is established from the computed probability method has an equal chance of being too high or too low and thus is the most likely to win acceptance in a voluntary program when political and administrative implications are considered. However, while FEMA uses the computed probability method in determining estimates of the 100-year flood in its flood insurance studies, it realizes that the expected probability curve is better suited for use for other economic analysis purposes. As a result of concerns about the economic consequences of utilizing computed probability instead of expected probability and the net loss of revenue that could result from the National Flood Insurance Fund, FEMA has made a generalized adjustment to the standardized elevation-frequency curves, upon which flood insurance rates are based, to compensate for this potential negative impact."

"While FEMA utilizes the computed probability method in determining flood flows in flood insurance studies for NFIP purposes, it

readily concedes that the expected probability method, as used by the Corps, is the more prudent choice for formulating individual projects in a way that maximizes the net economic development benefits specific to the project."

2201 The report references a Geotechnical Reconnaissance Report (May 1987) as a source for recommended stone protection of banks and levees. It notes that some of these recommended actions have already been carried out while others remain needed. These various locations are presented on Plate 13. The referenced report that recommends these actions is not part of the geotechnical portion of the 1991 American River Watershed Investigation and, therefore, cannot be reviewed nor evaluated. Where is this important report and why was it not included in the FR or DEIS/DEIR?

RESPONSE: The May 1987 analysis was superseded by an analysis done in July 1989 which is given in Appendix M, Geotechnical Investigations, Erosion Protection Requirements; American River Chapter. This later analysis reviewed work and recommendations of the May 1987 work. The most recent analysis recommendations were used in evaluating alternatives in the Feasibility Report. The Feasibility Report is being revised to clarify which geotechnical report was used in the American River Watershed Investigation.

2203 Will additional floodflow volumes (134,000 AF+) and the doubled instantaneous peak floodflow associated with this failure result in costs to the Auburn project that could be effectively avoided by treating the L. L. Anderson structure to reduce its vulnerability to failure? Would this be a positive cost trade-off?

RESPONSE: The dam at L. L. Anderson was determined to fail for the probable maximum flood (PMF). This is a design flood used to size the emergency spillway for the proposed flood control dam. For sizing the flood control space required, L. L. Anderson is not expected to fail. Therefore, the only part of the dam impacted by failure of the upstream structure is the top 55 feet of dam used to pass the PMF. L. L. Anderson is owned by another agency. It would be expensive to modify this structure and difficult to justify modifying a private dam. It is more economical to include the small additional dam height required at the proposed flood control dam to pass the PMF including failure at L. L. Anderson. Any future improvements to L. L. Anderson Dam proposed by the owner will be considered during the design phase of this project.

2201 The notation to Plate 13 leads to a photocopy of an original map on which the important differentiations were made in color: this information is not translatable on the photocopy. It is not possible to determine which of the recommended actions have been already undertaken and which would be required. Without this information it is not possible to determine remaining riprapping which the ACE foresees as needed.

**RESPONSE:** This plate will be revised to increase clarity. The only riprap work recommended by the American River Watershed Investigation is that work required for any proposed alternative which increases the Folsom release rate. This work is described in the Design and Cost Estimates Appendix, Levee Alternatives Chapter, 100-Year, 130,000 cfs Alternative and 150-Year, 180,000 cfs Alternative Sections.

2200 With the minimal parameter exceedences presented in this section, it appears that only minor levee thickening, toe buttressing, and toe draining would resolve the problems identified and easily increase the design capacity of the levee system to 130,000 cfs.

**RESPONSE:** Remedial work required for a 130,000 cfs release rate in the lower American River is described in the Design and Cost Estimates Appendix, Levee Alternatives Chapter, 100-Year, 130,000 cfs Alternative Section. As stated in previous responses, it is imperative to ensure a conservative and safe design when using high levees to protect a major urban area. Also, higher release rates would increase the risk of sloughing induced by draining of the detention pool in the upper canyon.

2188 It does not appear that an in-depth analysis was done on the use of upstream reservoirs. The range in the cost of acquiring the storage space in the upstream reservoirs is too large to be credible. It seems unlikely modifying outlet works on upstream reservoirs would be half that of modifying Folsom's spillway. More evidence of your analysis should be provided.

**RESPONSE:** The analysis used to determine available space in upstream reservoirs is discussed in Appendix K, Hydrology, and in Chapter 3 of the Main Report. In addition, see the response to the general comment about Upstream Storage.

2200 Pg M-2-11 thru M-2-12 - The report mentions that there was "on-going erosion" on some portions of the "levee riverside berms" at high flows and notes that the loss of the riverside berm above Hwy 80 RL side caused the "levee to slough". Inspections of this location prior, during, and after the 1986 event and supporting photos indicates that this failure was located at the downstream end of a levee riprapped reach. Pre-1986 event observations indicated that eddying and other hydraulic forces initiated by the abrupt trailing hard edge of riprap was causing erosion at the toe of the levee and along portions of the lower slopes. It is most likely that under the influences of the higher velocities and water surface elevations, the hydraulics set up by the riprap lead to the erosion of this portion of the levee. Once eddying action and progressive bank erosion at the trailing edge of the riprap proceeded laterally to a depth where hydraulic forces were great enough to disturb or undercut the riprap materials, the levee failed progressively upstream and downstream. This process of riprap and levee bank failure is recurrent and easily observed throughout the Central Valley where hard and abrupt riprap (or concrete, etc.) edges exist in conjunction with natural banks. Bank protection begets bank protection. No other channel conditions were observed at this location that could explain the failure and it could have been avoided by seeking some solution (to whatever problem) other than hardening. What evidence or assessment suggests that the riprap hardened features and other manplaced elements are not the causes of the identified "on-going erosion"?

**RESPONSE:** The required erosion protection for higher release rates is discussed in Appendix M, Geotechnical Investigations, Erosion Protection Requirements; American River Chapter. It is noted that existing riprap ends just upstream of this location. This particular location is also located on the trailing end of an outside bend, an area where velocities are concentrated in rivers during large flows. The lower American River suffered much erosion to its banks during the 1986 event in many areas where riprap and other man-placed elements did not exist. Fortunately much of this erosion was along river berms and did not threaten levees. As discussed in the referenced chapter, the main cause of erosion along the lower American River is high velocities during large flows.

2201 Prior to considering riprapping this channel, the individual problems addressed should be reviewed for alternative solutions such as changing the existing concrete ramps and other man-placed features that are inducing erosion and adjusting other channel features to reduce erosive energies before slope hardening. In addition there are many locations along the channel bank where apparently oversteepened faces

are eroding quickly. However, long-term aerial photo interpretation and the assessment of basic channel geomorphic processes reveals that these slopes are indeed very much more stable than they appear and do not warrant riprap protection. The ACE should analyze the flow capacity of the channel when using approaches other than riprapping, including removing man-placed causative features and evaluating the options of channel enlargement.

**RESPONSE:** The purpose of Chapter M-2 of Appendix M was not to evaluate erosion protection requirements. This aspect is covered in the Erosion Protection Requirements; American River Chapter of Appendix M, Geotechnical Investigations. This Chapter looked at erosion protection required based on velocities caused by increased rates of flow. These increased velocities cover large areas of the American River floodway and would cause erosion if there were no other "man-placed" features in the floodway. It is hard to reconcile statements that described a bank as rapidly eroding and yet as stable. Any bank which is rapidly eroding and moving and approaching an existing levee should be evaluated for erosion protection of some sort. Existing erosion problems are being addressed by the ongoing Sacramento River Bank Protection Project and periodic maintenance of the existing project. Thus far, increased release rates have been evaluated as alternatives only. If increased release rates become a measure of the Selected Plan, additional studies and analysis will have to be done prior to recommendation of this measure as a part of the Selected Plan.

2125 Assumption that the rivers crest at the same time with the same frequency storm again brings into question of joint probability, which decreases the frequency of the event for which you are designing.

**RESPONSE:** Sacramento River in the vicinity of Sacramento is hydraulically very complex. There are several reservoirs upstream and numerous weirs which divert the flows out of the Sacramento River channel. Trying to develop a coincident frequency analysis of this flood control system in itself is very difficult, if not impossible, considering the state-of-the-art methods available to perform this type of analysis in the water resources field. However, based upon historic evidence, and also on previous studies done for the upper Sacramento River Basin, we came to the conclusions presented. The same frequency storm was assumed only for the 100-year event. Larger events on the American River were assumed concurrent with the 100-year event on the Sacramento River and vice-versa.

Normally, when trying to develop concurrent flows and frequency of events, the conservative approach is taken toward public safety because of the many unknowns involved with any analysis. This is

especially true when working with a small history of flood events. The Corps, when calculating stages for various frequency events, did not want to understate the magnitude of the stages in the Sacramento area where levees are used to protect lives and property. Historically, large floods on the American River have always been accompanied by large flows from the Sacramento River system, with a major portion arising from the tributary Feather River.

2200 In addressing the issue of raising the levees along the American, the report states that for the 130,000 cfs design capacity the levees should have a 6 ft. design freeboard, and for 180,000 cfs it should be 5 ft. The original 115,000 cfs capacity channel had a design levee freeboard of 5 ft. and this chapter recommends a 5 ft. freeboard for the 180,000 capacity channel. For unexplained reasons this chapter recommends the 130,000 cfs design capacity channel levees with 6 ft. freeboard. Why was this assumption developed; what is the factual basis? Is it that the existing levees currently meet the 5 ft. standard at 130,000 cfs and there would be no work to do?

2201 Observations of the 1986 event indicate that the only problems at 130,000 cfs were at locations where: (1) man-placed features caused erosion, (2) ACE levee riprapping (see comments relative to page M-2-12 above) caused erosion and (3) at a specific location where channel constriction and eddy hydraulics set up by a combination of the city in-channel water intake tower and the sewer inverted syphon under the river immediately downstream caused erosion. How can the statements in this chapter M-4 be reconciled with those of chapter M-2 which only mentions erosion in passing.

**RESPONSE:** The design freeboard established for all levee alternatives along with the rationale is discussed in Appendix N, Design and Cost Estimates, Levee Alternatives Chapter, Freeboard Section. The freeboards given on page M-3-1 were preliminary and were later changed. This section of the report will be revised to be consistent with the final design freeboards established. Work required to make the lower American River levees safe for a 130,000 cfs release rate is described in Appendix N, Design and Cost Estimates, Levee Alternatives Chapter, 100-Year, 130,000 cfs Alternative Section.

Riprap requirements for the alternatives considered are given only in Appendix M, Geotechnical Investigations, Erosion Protection Requirements; American River Chapter (Chapter M-4). All other chapters which mention riprap do so only as an indication of where riprap might be required and should be investigated. These portions of the report have been revised to direct the reader to the appropriate chapter for riprap requirements for the

alternatives. There is no reason to reconcile Chapters M-2 and M-4 with regard to riprap. The Erosion Protection Requirements Chapter establishes riprap requirements. The Stability Analysis Chapter (Chapter 2) establishes work required to make the levees stable for increased releases. As stated earlier, when an urban area depends upon high levees for flood protection, it is imperative that all potential weak spots be identified and fixed. This includes areas of deficient design freeboard, areas of instability, and areas of potential erosion. To ensure a conservative and safe design for these alternatives, all potential areas of work were identified and remedial measures designed and cost estimated.

2180 Another way that the Corps has overestimated flood benefits attributable to Auburn Dam is in its analysis of the hydraulics of the Sacramento River - Yolo Bypass system that in turn affects flood levels in the lower American River. Assumptions made in the analysis that can exaggerate these flood levels include:

Failure to consider the effect of removal of sediment at the Fremont Weir.

The use of a higher Fremont Weir elevation than the actual crest.

The assumption of coincident flood peaks on the American and Sacramento River System.

Ignoring the observed effect of channelbed degradation in the lower American River since Folsom Dam was completed. Measured cross-sections of the river channel have lowered at least 3 feet.

RESPONSE: All hydrologic and hydraulic analysis have been accomplished with the assumption that the gradual accumulation of sediment around Fremont Weir for the last 50 years has been removed. As of November 1991, the State had completed its program of removal of sediment around the Fremont Weir. This program would remove all the sediment around the weir and would then leave the crest unobstructed at the existing elevation of 30.5. Flow in the area is complex. For a conservative approach, the analysis was accomplished with the elevation of the weir at 31. Only two-thirds of the sediment was removed so 31 was used. This would give conservative elevations for determining the flood threat and setting levee heights in the upper Natomas area. Actual flow elevations with the sediment removed cannot be validated until high flows occur which can be rated at the weir. Our analysis has shown that the weir elevation has an insignificant effect on elevations at the Sacramento-American River confluence. The determination of coincident flood peaks on the American and Sacramento River System

in the vicinity of Sacramento is hydraulically very complex. There are several reservoirs upstream and numerous weirs which divert the flows out of the Sacramento River channel. Trying to develop a coincident frequency analysis of this flood control system in itself is very difficult, if not impossible, considering the state-of-the-art methods available to perform this type of analysis in the water resources field. However, based upon historic evidence, and also on previous studies done for the upper Sacramento River Basin, we came to the conclusions presented in Appendix K. Normally, when trying to develop concurrent flows and frequency of events, the conservative approach is taken toward public safety because of the many unknowns involved with any analysis. This is especially true when working with a small history of flood events. The Corps, when calculating stages for various frequency events, did not want to understate the magnitude of the stages in the Sacramento area where levees are used to protect the lives and property of the city. A review of the USGS stream gage data was made to determine when the Sacramento and American Rivers peaked at the confluence of these two major rivers during major flood events. The major flood events in 1955, 1964, and 1983 were reviewed and it was found that historically these rivers peak at Sacramento on the same day or within one day of each other. In addition, the flood peaks are broad, and the difference between peak flow and flows one day previous or following is generally less than 5 percent. Thus, even assuming that the true peaks occur several days apart, there would be no significant change in the hydraulic calculations. The current status of the American River has been used in the analysis. A hydraulic backwater model was assembled for the lower American River in 1988. This model was developed for establishing new flood plain information for the Federal Emergency Management Agency for flood insurance studies. Floodplain cross sections surveyed in 1987 were used in developing this model and it was calibrated using surveyed high water marks for the 1986 flood. This flood was in excess of 130,000 cfs which very nearly filled the lower American River floodway. The use of these recent surveys and high water information for calibration has provided a backwater model with a high confidence in results provided. This backwater model was used in the determination of channel capacity and in the evaluation of the lower American River alternatives. Comparison of water surface profiles using the 1987 surveys with available stage-discharge relationships along the American River done in 1956 showed no significant differences.

Please refer to Appendix K for further discussions.

2202 Accepted norms of the responses of watersheds to major storm events and the relationships of these responses to the magnitude and recurrence pattern of channel floodflows suggest a different conclusion in this matter than is assumed by the report.



2202 If the proposed project is built, it will offer protection from 400-year floodflows on the American so long as there is no greater than a 100-year event on the Sacramento. Since it is likely that scenario will not happen, what level of protection does the project actually offer? Is it anything greater than 100-year? Normal statistics and logic would indicate the answer is no.

2202 Is the report stating that it is not the 400-year nor is it the 200-year but may be some concurrent event with a recurrence magnitude of 100-150 year in which the project would be effective in providing floodflow protection? This assessment does not appear in the report and it may not have been conducted, but it is necessary to decision-makers and cost benefit assessments.

2265 What will it mean for the system if we share a 400- or 200-year storm equally on both watersheds? Can we expect the need for more flood control projects north of Sacramento? What is the Corps doing to promote floodplain management among local and State governments?

**RESPONSE:** Rare flood events, such as the 200- and 400-year floods, from the Feather, Yuba, and American Rivers would cause major downstream flooding and damages. The reservoirs and downstream levees will not contain floods of this magnitude.

It is unlikely that a 200- or 400-year flood on the American River would coincide with the same size flood on the northern Sacramento Valley. However, a major share of water in the lower Sacramento River comes from the Feather River (including the Yuba and Bear Rivers) System which can be expected to also contribute high flows during a large flood on the American River. Concurrent 200-year floods on the American and Sacramento River Systems were analyzed indirectly when the 200-year flood on the Sacramento River was assumed concurrent with the 100-year flood on the American River. This is because with a 200-year detention dam, the 200-year lower American River flow is the same as the 100-year.

Development activities in the floodways and along the levees are regulated by The Reclamation Board and local municipalities under the FEMA National Flood Insurance Program. The Corps cooperates with The Reclamation Board on floodplain management issues.

2179 The last five years have produced small flood peaks and incorporating this data into the Corps' hydrologic analysis for an 87-year period of record would reduce flood peaks by about 6 percent, which translates into a larger proportional reduction in benefits attributable to an Auburn Dam.

**RESPONSE:** Appendix L was revised and includes an additional statistical analysis for the period 1905 through 1991 (Page L-3). The computed statistical means for all durations were reduced due to the addition of the dry water years since 1986. However, the higher standard deviations and skews generated frequency curves very similar to those presented on Plate 2. Based on the updated information, any change to the flow data developed and used as a basis for the designs presented in this report is unwarranted.

2188 It is inappropriate to reject improved flood forecasting for Folsom Reservoir operations. There is no analysis of whether, with the lowered spillway, additional flood control could be provided.

**RESPONSE:** A hydrometeorological network of gauges installed at 12 locations in the basin above Folsom Dam transmits data on rain, snow and temperature to a computer model located at the National Weather Service River Forecast Center in Sacramento. Inflows into the lake, based on hydrologic occurrences, can then be projected for a number of days. An accurate prediction of inflow requires advanced knowledge of the intensity and amount of rain expected, as well as the elevation above which snow will fall. However, despite technological advances such as computer maps, satellite photographs, radar and observed data, forecasts are generally not precise enough to provide more than a few hours lead time in reservoir operation.

The additional flood control that can be provided with a lowered spillway is discussed in Chapter V, Alternative Plans Considered.

1983 Even though the Yolo Bypass flows were within 5 feet of overtopping their levees, there is enough remaining capacity to accommodate Sacramento River flows that could be anticipated during a 400-year flood.

**RESPONSE:** The design freeboard for the Yolo Bypass is 6 feet to allow for wind wave runup on the levees, which typically accompanies major flood events. A 400-year flood would encroach on the design freeboard, leading to possible levee failure.

2022 Insufficient data was presented in the EIS to evaluate the impact of the February '86 event on the available period of record.

**RESPONSE:** Assuming the comment is referring to floodflow data, the flood frequency analysis evaluated the period from 1905 to 1986

which we consider the best available information for the purpose of designing this project.

2178 I reaffirm my previous conclusion that the Corps' analysis does not evaluate the most cost-effective and timely solutions for reducing flood risks to the Sacramento area. One-hundred-year flood protection can be provided by simply ensuring that Folsom Dam and the downstream levees are operated and maintained according to their original design. Two-hundred-year protection could be provided by incremental improvements in reservoir operation and floodway capacity.

RESPONSE: A large array of flood control measures and alternatives has been formulated and evaluated. This analysis is given in Appendix B and in Chapters IV and V of the Main Report. The nonfederal sponsor has expressed interest in alternatives which provide a high degree of flood protection. Chapter VI of the Main Report describes how the Selected Plan was chosen. For further information regarding the operation of Folsom, see the response section titled "Efficient Use of Folsom" in this Appendix. The report discusses measures to increase floodway capacity. Work required to increase the floodway capacity is described in Appendix N, Chapter 1. The report shows that modifying the American River levees to accommodate a sustained 152,000 cfs objective release is not a quickly implementable or practical solution. The safe channel-carrying capacity of the American River levees is 115,000 cfs. A 1988 geotechnical analysis, Appendix M, Chapter 2, determined that the levees are stable for extended flows only up to 115,000 cfs. Extended flows above 115,000 cfs would lead to landside levee sloughing and/or piping through the levees which could lead to failure unless remedial stability measures are constructed. In addition, hydraulic analysis indicates that flows above 115,000 cfs would cause damaging bank erosion along the lower American River which would threaten the existing levees. This was substantiated during the flood of 1986 which peaked above 130,000 cfs. For both of these reasons, extended flows above 115,000 cfs cannot be safely accommodated by the lower American River levees unless significant levee modifications as described in the report are constructed. The report also shows that 200-year protection cannot be achieved without an increase in upstream storage. Please refer to the discussion of this incremental alternative in the Plan Formulation Section of this Appendix.

2178 I have criticized a number of key technical assumptions underlying the Corps analysis. Their assumptions bias the analysis toward the selection of a dam at Auburn. Most of the issues I have raised are quantifiable issues subject to deterministic analysis and alternative. In failing to address

these issues, the Corps has failed to formulate the alternatives that best meet NED and NEPA criteria.

**RESPONSE:** The Corps' analysis has been done in a manner to adequately identify the NED plan and according to NEPA, CEQA, and other guidelines. Several technical assumptions used in the Corps' analysis are described as a part of responses to similar comments in this Appendix. See the responses to Corps vs FEMA Methodology, Additional Upstream Storage, and Efficient Use of Folsom.

2178 It is my contention that a flood frequency analysis based on an accurate and up-to-date database using approved methods and considering actual effects of upstream reservoirs, along with reoperation of Folsom could provide close to 200-year protection. It could be seen that the net annual benefits would be about \$150 million, greater than the recommended plan.

**RESPONSE:** The database was expanded to include the last five years of record and checked to ensure its accuracy. An analysis of this revised database using the Corps' approved method of analysis, see response to Corps vs FEMA Methodology in the Hydrology Section of this Appendix, determined that there was no appreciable change to the frequency analysis and values presented in the draft report. The amount of existing upstream storage which can be consistently relied upon for flood control is discussed in the response to Additional Upstream Storage in this Appendix. When providing flood protection to an urban area, it is important to be conservative in the design analysis and only use flood control space which is consistently available. Measures which include reoperation of Folsom have been analyzed including their costs and benefits. These alternatives are discussed in Appendix B and Chapters IV and V of the Main Report.

2178 The Corps has defined its goals in the analysis as flood control rather than flood damage reduction. This has led it to neglect or underestimate the value of a series of incremental cost-effective improvements in the present flood management system.

**RESPONSE:** The planning objectives for the study are given in Chapter IV of the Main Report. From these it can be seen that one of the objectives is flood protection. This objective led to the formulation of a wide array of measures to provide flood protection which were considered and evaluated. The evaluation of these measures is given in Appendix B and Chapters IV and V of the Main Report.

2188 It does not appear that an in-depth analysis was done on the use of upstream reservoirs. The range in the cost of acquiring the storage space in the upstream reservoirs is too large to be credible. It seems unlikely modifying outlet works on upstream reservoir would be half that of modifying Folsom's spillway. More evidence of your analysis should be provided.

**RESPONSE:** Costs for modifying the upstream reservoirs were reexamined and found to be reasonable. These reservoirs are situated at high elevations in the drainage basin and control only a small portion of the basin. Therefore, they have a small impact on floodflows.

2260 Page 33, Appendix K - The Corps reports dates of the highest stages in the Sacramento and American Rivers for the five largest storms from the past 35 years. This table is apparently the basis for his assumption of peak coincidence. The Corps does not explicitly state that the stage elevations in the Sacramento result from flows originating above its confluence with the American, but clearly such a statement is implied. However, gauges utilized in the main channel of the Sacramento are influenced greatly by flows in the American, which may flow upstream to Verona as it did in 1986. Hence this table is misleading in that it leads the reader to conclude without sufficient justification that high stages in the Sacramento are independent of high stages in the American.

**RESPONSE:** The stage that occurs at the confluence of the Sacramento and American River is caused by a complex hydraulic regime. It takes high flows from both the Sacramento and American River systems to create high flood stages. The purpose of the table is to illustrate that the largest historical floods on both rivers (since Folsom was built) peaked on the same day or within a day at the mouth of the American River. All of these floods had high flows from the Sacramento and American Rivers. It is important to remember that the Sacramento weir is operated to control the stage at the Sacramento/American Rivers confluence at 27 feet mean sea level, until all gates are open. After the weir is fully open, it takes increased flows from both rivers to increase stages, which happened during these floods.

The Corps is extremely concerned with public safety and therefore (after noting that the American and Sacramento have historically peaked on the same day) took the position that for extreme floods that the flood peaks from these two rivers will be coincident. It is very important that flood hazards not be understated. This is especially true in a situation like the Sacramento area considering its location at the confluence of two major rivers, its highly urbanized character, its extensive reliance upon levees for

**protection from flooding, and the potential loss of life and extensive damage that will occur should these levees fail.**

2180 Prior to the construction of Folsom Dam, the American River levees protecting the City of Sacramento were able to contain flood flows of at least 180,000 cfs (as occurred in the 1950 flood). Folsom Dam was completed in 1955 and was intended to be operated "to eliminate flood damages along the American River" by limiting flood flows to 115,000 cfs. In the 1986 flood, the Corps was unable to operate Folsom as predicted in its own feasibility report - a key reason being concern over potential damage to park property in the floodway downstream (p. III-10 FR). This has led to a significant deterioration in Folsom's ability to provide flood protection to Sacramento from greater than 100-year to possibly less than 50-year protection. In addition, levees constructed 35 years ago to 180,000 or 152,000 cfs flood capacity have now deteriorated to 115,000 capacity (p.19, Sacramento River Flood Control System Evaluation, May 1988, SRFCSE), and large areas of floodplain, which was considered to be protected, have been allowed to be developed.

With the construction of Auburn as a flood-control reservoir, and with the continuation of present policies that downgrade the importance of levees, floodway capacity and floodplain land-use, there is no assurance that this long-term pattern of deterioration would not continue. There would be even less incentive to ensure effective flood-control reservoir operation for Folsom and even less interest in maintaining downstream levees and floodway capacity. Furthermore, the feasibility report appears to leave open the potential for transferring and reducing net flood storage from Folsom to Auburn in the future based on unidentified "emergency" criteria (VIII-19, FR), gate operation for system safety and a goal of minimizing Folsom Reservoir fluctuations (VII-13, FR), possibly reducing net flood benefits in the future.

**RESPONSE: 115,000 cfs is objective release of the flows that can be released to maintain 5' freeboard and levee integrity over extended periods of time. Levees are designed to carry 152,000 cfs with 3' freeboard for short durations. Levees may still be able to carry 180,000 cfs but integrity and safety may be jeopardized.**

2260 After the 1986 storm, the Corps revised the "Emergency Release Diagram" for Folsom. This diagram dictates releases from Folsom during large storm events. The apparent justification for this modification in release procedures was the fact that Folsom Reservoir reached capacity in the 1986 storm and disaster was narrowly averted when precipitation ceased. However, such a justification is apparently not warranted if

in fact the reservoir reached capacity due to operator error or negligence instead of hydrologic phenomenon.

Should Folsom Reservoir approach capacity in a future storm, the Corps will now allow releases of over 160,000 cfs, 40,000 cfs above downstream channel capacity, a release that automatically puts Sacramento in the floodplain. This new release diagram, coupled with the assumption that reservoirs upstream are 95% full at the beginning of peak flows, may in fact be the difference between a prediction that Sacramento is in the 100 year flood plain, and a prediction that Sacramento is not.

The Corps has not justified utilization of its new Emergency Release Diagram. The publication of this diagram in itself, given that it allows downstream releases in excess of channel capacity, is in itself a significant federal action subject to the NEPA process. Given the recurrence intervals of events that would require such releases, the Corps should not claim that such a revision was an emergency action. The Corps must now fully justify, during this environmental review, use of this diagram or initiate separate environmental review on its Emergency Release Diagram.

**RESPONSE:** Emergency release diagrams are used to determine the reservoir outflow when it is apparent that the reservoir will be filled to a level greater than gross pool (normal operating capacity) and anticipated reservoir inflow is such that channel capacity must be exceeded. Emergency release diagrams provide the guidance for spillway gate operation. If releases indicated by the emergency release diagram are not made as indicated, then in all probability, larger releases will be required later.

Reservoir spillways are designed to protect dams from overtopping and possible failure during floods greater than those that the reservoir was designed to control to channel capacity. Although experience during past floods may influence the emergency release diagram operating rules, normally the floods used to determine reservoir operation during emergencies are hypothetical and far greater than any historic flood. The emergency release diagram in the December 1987 Folsom Dam and Lake Water Control Manual was not based on the February 1986 flood, and in fact was developed quite a few years prior.

Any assumptions made about upstream conditions during hypothetical flood routings through Folsom Lake have had little or no influence on the emergency release diagram. Releases required by the diagram are determined from inflow to Folsom Lake and pool elevation in Folsom Lake.

2260 It is prudent and necessary that SAFCA retain the services of competent engineering consultants to review the Corps hydrologic and hydraulic analysis. We suggest that SAFCA, again with the aide of qualified professionals, utilize these comments and additional technical comments submitted previously to the Corps to develop a Request for Proposal to review the Corps work. We suggest that this RFP be developed and submitted to the United States Geological Survey and to the various departments of Civil Engineering at the University of California.

**RESPONSE:** Hydrologic analysis has been reviewed and concurred by professional engineers with the State Department of Water Resources and the U. S. Bureau of Reclamation plus Government agencies.

2179 The Feasibility Report provides no satisfactory explanation for the misoperation of Folsom Dam during the 1986 flood, but instead cites the Bureau's report **Preventing a Crisis** (see attachment), which attempts to blame its tardy releases on the National Weather Service flow forecasts at a time when record flows were being experienced elsewhere in California. None of the criticisms I have previously made of the 1986 operation has been adequately addressed in the Feasibility Report or Corps response to EDF's critique (PWA 1986, PWA 1987). Indeed, the Corps now seems to want to institutionalize a poor operation by retroactively revising its operating procedures to downgrade flood protection for Sacramento, rather than seeking ways to upgrade the operation. If Auburn Dam were to be built, its flood control operation would need to be coordinated with Folsom's. If existing flood control procedures at Folsom are not followed, there is no assurance that the Corps can enforce an operation of Folsom cannot be and Auburn to provide the level of flood protection promised for Sacramento.

**RESPONSE:** The existing flood control procedures were followed at Folsom in 1986. System will be operated to provide the level of flood protection promised for Sacramento. Flood control operation criteria of Folsom were revised following 1986 flood and made more stringent.

2187 The Feasibility Report identifies the inability of the Folsom Dam to pass the Probable Maximum Flood (pg. II-10), yet lowering the spillway is not included in the Tentatively Selected Plan. Please provide an analysis of the current spillway's affect on the safety of Folsom Dam. What limitations on flood control operation of Folsom Dam does the current spillway impose?



RESPONSE: The Corps is presently analyzing the safety of Folsom Dam under probable maximum flood conditions. No report is available at this time. The existing spillway is unable to discharge large releases until the reservoir level rises high enough to obtain the hydraulic head on the spillway to get the desired high discharge.

## **INTERNAL DRAINAGE**

- 1848 Executive Summary, Table III - The second future Natomas interior drainage pumping impacts aren't in the DEIS. If part of the project, they need to be addressed in the revised DEIS.
- 1112 Drains in Natomas don't have anything to do with flood control which means the federal government is subsidizing the development of north Natomas.
- 1928 What criteria did the Corps use to determine the size of the pumps in Natomas? Why is it necessary to increase their size so dramatically and how was the cost of this facility derived?
- 1928 On page 9 of the report, you state that the appropriateness of including the pump in the TSP is under review. Please explain that statement in greater detail.
- 1928 You state that pumps would be shut off if inflow presented risks to levees. Since their use would occur during heavy rains, doesn't this restriction negate their effectiveness and create the potential for disaster in Natomas?
- 1928 Who pays for the pumping stations? Why does payment for them by the nonfederal sponsor qualify for credit towards the project and not direct federal funds?

**RESPONSE: The internal drainage pumps in Natomas have been deleted from the Selected Plan.**

- 2194 The risk and uncertainty section of the TSP does not adequately discuss the risk of flooding from interior sources and from the Sacramento River. This section needs to be significantly expanded.
- 2194 Development in Natomas will be induced by the project and the Natomas area already has significant drainage problems. This is a significant uncertainty with respect to whether the TSP, or any high-level flood control project, will accomplish its purpose.
- 2170 It is not true that in "most cases interior flooding would be shallow and localized". Flood depths ranging from 4 to 10 feet are possible in the Morrison and Magpie Creek floodplains. However, we agree it would be much more localized due to the lack of volume on the smaller stream groups.

**RESPONSE:** It is recognized that implementation of the Selected Plan, while providing a high level of flood protection, does not solve all the flooding problems in the Sacramento area. The authority for this study included in Chapter I of the Main Report directs the Corps to study flood control alternatives for the American River and improvements for Natomas. The authority was not to develop a regional plan addressing all the flood control problems; therefore, the scope of the problem and associated risks were not discussed in great detail. As with any master flood control plan, control of the backbone system is essential before any meaningful improvements on tributaries should be contemplated. This project, together with the current construction on the Sacramento River levees in Natomas and the Greenhaven/Pocket areas, will provide the primary infrastructure from which other projects addressing tributary drainage problems can build.

As indicated in Chapter VII, there will be residual flooding from these tributary creeks and streams including, but not limited to, Morrison, Laguna, Arcade, Magpie, and Dry Creeks. However, the flooding will not be of the catastrophic depths or volumes which would be experienced from the American or Sacramento Rivers where flood depths of 20 to 30 feet could be experienced. Specific projects addressing these streams will be formulated by the local government. In areas where existing development is at risk, assistance from the federal or State may be sought depending upon the magnitude of the problem and scope of the solution. In areas where new development is likely, such as Natomas, infrastructure to provide protection from flooding would be required of the development pursuant to local ordinances.

2192 The discussion and rationale of the NEMDC and interior drainage pumps is inadequate. What are the environmental effects of including the pumps? What is the federal interest in including the pumps? Please provide an analysis of why the cost of the pumps should not be cost-shared with private interests. Please provide analysis of effect of the pumps during different flow regimes.

2069 Full impact of constructing two or three more districts to collect and pump drain water to fisheries is inadequately discussed. Also insufficient discussion of increased runoff within the floodplain.

**RESPONSE:** The interior pumps in Natomas have been deleted as a project feature leaving only the NEMDC pump station as part of the Selected Plan.

This pump station is used to prevent backwater influence of the American River from extending further into the NEMDC where water surfaces would encroach into levee freeboard during design events

threatening levee failure and flooding Natomas. The gates would normally be open to allow gravity drainage of NEMDC and would only close during rare events. The pumps would then be activated to handle tributary flows upstream of the structure. The details of the pump station are included in Chapters IV and VII of the Main Report. Environmental impacts are addressed in the EIS/EIR. This structure, unlike the deleted pump stations in Natomas, is an integral part of the Natomas improvements needed to protect the existing development and is not an internal drainage feature. As such, it is cost-shared by the federal government as a flood control improvement.

2170 The last sentence on page 17 should read: To help protect the Pocket area and Morrison Creek and tributaries floodplains, the City is studying the flood problem and has asked the Corps for assistance under the 205 authority. A preliminary cost estimate of \$25 to \$50 million indicates that a general investigation should be undertaken by the Corps.

RESPONSE: As we understand the issue, the City and County of Sacramento are pursuing raising a portion of the north Morrison Creek levee to prevent waters from this stream group from flooding the Pocket area. In addition, the City of Sacramento has requested the Corps to initiate a general investigation to address the flooding problem of the Morrison Creek Stream Group, which is under consideration. This study is outside the scope of the American River Watershed Investigation.

## INUNDATION FREQUENCY

- 128 I oppose the flooding of the Middle and North Fork canyons.
- 180 Under any scenario, this dam would destroy one of the few remaining pristine unprotected canyons left in California.
- 1765 Once a dam is built, the area will be flooded immediately regardless of flood control or water contracted for government sale.
- 1921 The gates would be closed for emergency, which would kill vegetation and wildlife. Once they are closed, there would be the temptation to keep them closed because the damage had already been done.
- 1776 Periodic flooding will endanger the upper canyons because closing the gates is too easy.
- 1968 Because the gates could close at any time an "emergency" is declared and could keep the gates closed for an indeterminate period of time, the potential for inundation mortality due to increased frequency and duration of flooding is vastly increased.

**RESPONSE:** Feasibility Report, Chapter VIII, Special Topics, has been revised to reemphasize (1) that all features of the flood detention dam are for flood control only; (2) that the gates would only close for system safety and periodic maintenance; (3) what system safety includes; and (4) that the decision criteria for closing the gates during a system emergency (ie. imminent failure of levees in Sacramento) is a joint decision made by the State/Federal Flood Operations Center in cooperation with the Corps of Engineers, Bureau of Reclamation and City and County agencies. The authorized purpose of the detention dam is for flood protection. Any deviation authorized from this purpose would require additional structural changes and because of the change in purpose and structural modification, Congress would need to reauthorize the project. Excluding the likelihood of a major emergency, the only other closure would be for periodic maintenance of only two gates at a time, which would only be done during the dry season.

- 128 Flooding the canyons will wash away roads and trails needed for recreational use. The U. S. cannot afford to constantly repair these structures.

**RESPONSE:** The major roads crossing the infrequent flood detention area are being relocated out of the inundation zone. The impacts

to other trails will be minimal, as explained in Chapter 14, Recreation, of the EIS.

1916 Periodic inundation of the canyon would degrade vegetation and wildlife habitat as well as damage access roads and trails.

1910 The operation of the dam would be destructive because of repeated inundation.

1211 There must be a cumulative impact of inundation which would be repeated year after year.

1904 I believe that there are long-term adverse impacts and irreversible effects from inundation of the canyon, including wildlife, recreation, visual resources, soil stability, and quality of life in general.

1758 Periodic flooding would have serious effects on the environment.

1939 The damage to the canyon would be more severe under a worst-case scenario of high water for an extended period. This high water could result from a landslide which could block the river or closure of the dam gates in case of a downstream emergency. The effects of these scenarios have not been described in the EIR/EIS.

1939 No long term irreversible impacts from the TSP are described. But there are potential long term irreversible impacts to wildlife habitat, recreation, water quality, soil, erosion, noise, traffic and population growth.

1975 Increased landslides and erosion as a result of periodic inundation will also adversely impact nationally significant historic, recreational, and scenic values.

1938 The adverse effect of inundation of the canyon on long term productivity needs to be addressed. Inundation would destroy the lower portion of the food chain (insects, worms, rodents) adversely affecting the upper food chain and reduce productivity.

2128 Those of us who know and love these canyons have serious doubts about your assessment of damage to upland vegetation due to prolonged inundation. There is not a practical, verifiable example of the scale and frequency of inundation.

1938 It is false and unsubstantiated claim that the natural resources upstream of the dam would remain productive over the

long term. The ecosystem would be severely damaged by temporary inundation.

2174 Even if the Corps does not close the gates or expand the dam in the future, the periodic inundation of the canyons would flood both the Middle and North forks, killing trees and causing landslides. Occasional flooding would also destroy or degrade recreational access roads and trails.

**RESPONSE:** The upper American River will sustain some slight unavoidable impacts to the environment. The frequency and duration of flooding as a result of a dry dam are very small and the environmental impacts would be comparatively minor. These impacts and the mitigation proposed are discussed in Chapters 7 and 22 of the EIS/EIR and in much detail in Appendix Q, Inundation Impacts. In the absence of additional flood protection for Sacramento, the impact of similar floods to the environment of the lower American River ecosystem would be great, as discussed in Appendices B and G.

2022 The EIS should present information showing the event period returns, projected maximum pool levels at those return periods, and the anticipated drawdown time to empty the storage pool.

**RESPONSE:** This information is presented in Appendix L of the Feasibility Report.

255 I oppose the flooding of the Middle and North fork canyons.

**RESPONSE:** Comment noted.

2221 Duration of inundation cannot be determined from the data in this report because of the flawed topo and stage discharge relationship. The methods used to estimate and imply depth and duration of inundation at the Sunrise site exaggerates the severity of the '86 event. This is not a conservative approach to translating estimated impacts to another site situation.

**RESPONSE:** The Reservoir Control Appendix describes the inundation/duration relationships for the detention dam. These were developed based upon area-capacity and flood volume information.

## **LAND USE - GENERAL**

2206 Please explain the basis for excluding certain "areas which are not projected to sustain future development" from the analysis.

**RESPONSE:** Revised Chapter 4 (Land Use) contained in the FEIS/EIR addresses land use impacts on all areas that will be affected by the proposed project.

2207 The report should include land use maps of the study subareas showing existing and planned uses. Descriptions of existing subareas showing existing and planned uses. Descriptions of existing settings are so broad and general that it fails to accomplish its purpose of informing the public and decision makers. Please relate the text to the specific land use maps.

**RESPONSE:** The updated Chapter 4 (Land Use) contains land use maps of the various affected subareas.

2207 In general, this section fails to qualitatively evaluate the potential land use impacts on the areas affected directly by construction as well as the impacts on the immediately surrounding areas. Please provide this discussion and appropriate mitigation measures.

**RESPONSE:** A qualitative explanation of land use impacts resulting from construction activities and appropriate mitigation measures can be found in the revised Chapter 4 (Land Use) of the FEIS/EIR.

2206 The report also fails to consider the development impacts resulting from the TSP arising from 17,000 acres tentatively planned for development by Sutter County.

1988 Major omission is the failure to consider General Plan Amendments for South Sutter and Sacramento counties and their impacts on urbanization and related impacts on fisheries. These plans will affect development to the year 2040. Current plans provide for slower rate of urbanization than will actually occur.

**RESPONSE:** The development of 17,042 acres of Sutter County in the Natomas area could not be developed according to the Sutter County General Plan Amendment until existing flood hazards are eliminated. Growth-inducing and land use impacts from the Selected Plan on



south Sutter County have been addressed in Chapters 18 (Growth-Inducing Impacts) and 4 (Land Use) in the FEIS/EIR.

2207 There is an explicit assumption in the report that, if no flood protection is provided, development not occurring within the 100-year floodplain would be relocated to the 400-year floodplain.

**RESPONSE:** If no flood protection is provided, development within the 100-year floodplain would be severely restricted. Some of the development that would have occurred in the 100-year floodplain would shift to areas within the 400-year floodplain and elsewhere in the region. For a discussion of land use impacts resulting from a lack of flood protection, see Chapter 4 (Land Use) of the FEIS/EIR.

1985 Chapter 9 mentions impacts on endangered species in Laguna Creek and Beach Lake areas due to removal of land from the floodplain. Nowhere else in the report is it mentioned that the TSP could impact Laguna Creek and Beach Lake. If these areas are to be removed from the 100-year floodplain, it should be addressed in the EIS.

**RESPONSE:** Laguna Creek and Beach Lake are in the Morrison Creek system which is outside the boundaries of this project and, therefore, outside the scope of this project. Separate studies are being prepared on the Morrison Creek flood area.

2196 The period of analysis which the Corps must use is the implementation period plus 100 years in this instance. There is no basis for using a shorter period with respect to land use analysis.

2205 It is unreasonable to base the environmental analysis of a project expected to last more than 100 years on growth plans for only the next 20 years. CEQA requires that the lead agency analyze a project's reasonably foreseeable impacts. It is entirely foreseeable that more development will occur over the next century than planners have anticipated.

**RESPONSE:** Federal regulations establish the period of analysis for a federal project to cover the time over which the project would have an effect, up to 100 years. However, predicting land uses 100 years into the future is very speculative. For this reason, existing general plans and land use trends have been used to develop a variety of land use scenarios. Please refer to the

revised Chapter 4 (Land Use) in the FEIS/EIR for a discussion of potential future land use impacts.

2207 The report describes Metro Airport and adjacent special planning areas as not being "developable", so excludes hundreds of acres from its consideration of land use impacts. In fact, Metro Airport includes substantial commercial development and Sacramento County has plans to expand it.

**RESPONSE:** The Sacramento County Metropolitan Airport is indeed planning to expand and develop adjacent commercial and industrial uses. Reference revised discussion in the Impacts Section of Chapter 4 (Land Use) of the EIS/EIR for a discussion of land use impacts on the Metropolitan Airport.

2206 The report fails to adequately describe the environmental characteristics of the area to be affected by the project. In the upper American River setting description, please provide a more detailed description of the lands used in the 9,000 acres of publicly owned area.

**RESPONSE:** Most of the land in the upper American River canyon area is publicly owned with 26,100 acres belonging to the U. S. Bureau of Reclamation and leased to the State Department of Parks and Recreation. The land is primarily unused as it is characterized by steep slopes and is relatively inaccessible. For further discussion of existing conditions and potential impacts to the upper American River area, please refer to Chapter 4 (Land Use) of the FEIS/EIR.

2207 Direct impacts fail to identify effects the mining and process of the material would have on potential land use.

**RESPONSE:** A complete analysis of existing land use conditions, impacts from mining and appropriate mitigation measures for all six aggregate source sites under consideration can be found in the "Environmental Assessment of Aggregate Source Alternatives for Construction of the 200-year Flood Control Dam at Auburn", located in Appendix M of the FEIS/EIR.

2206 The Regulatory Background Section on page 4-4 - Please provide a discussion of the regulatory options to handle flood control protection if the project is not approved.

**RESPONSE:** Essentially, if the TSP is not approved, the development moratorium in the 100-year floodplain will continue and those residing in the floodplain will remain at risk. Refer to revised Chapter 4, (Land Use), Legislative and Regulatory Background Section, for a more detailed description.

2205 The report states that an alternative land use projection that assumed maximum growth within the study area was not used for the impact analysis. Relying on existing general plan projections fails to provide an adequate basis for the analysis in this section of the EIS.

**RESPONSE:** For an explanation of the reasons that existing general plan projections were used for some of the growth-inducing impact analyses, please refer to the Background Section of Chapter 18 (Growth-Inducing Impacts) of the EIS/EIR.

2206 The land use category "vacant" inappropriately groups together vacant parcels and open space. Impacts to these two types of land will be both qualitatively and quantitatively different. Please revise the impact discussion to acknowledge this difference.

**RESPONSE:** The Tables in Appendix E, Land Use, show acreage under different growth scenarios. These were categorized as all urban and agricultural/vacant/open space. Changes in land use from agricultural/vacant to urban uses did not use open space acres. The Tables were separated into urban and nonurban uses. Therefore, the impact analysis does not need revision in regards to open space vs vacant.

## **LEGAL COMPLIANCE**

318 456 94 250 111 108 112

Common Comment #14: Your project (or EIS) does not comply with applicable laws which are discussed in Chapter 23.

**RESPONSE:** Additional information has been added to the appropriate chapters to assure that the project is in compliance with all laws, regulations, executive orders, and policies applicable at this stage of the project. An explanation has also been added in Chapter 23 of the EIS/EIR following each law explaining how the project complies with the law.

1924 A discussion of permits required and authorities of the Division of Water Rights should be added to Chapter 23. This agency (SWRCB) is not discussed in the chapter.

**RESPONSE:** The project involves only flood water detention; there is no water storage. Additional discussion has been provided in Chapter 23 of the EIS/EIR which explains why no water rights approvals are necessary.

1925 As described on Page VIII-12, if flood control storage is reduced in Folsom Reservoir and water supply enlarged, water use permits may increase. If consumptive use increases beyond permitted amounts, additional appropriation rights may be required for Folsom Reservoir.

**RESPONSE:** This discussion was made in reference to general impacts associated with an enlarged flood control dam; the Selected Plan does not contemplate construction of such a facility.

1925 Additional general information regarding water rights should be included in the EIS. The project should be constructed pursuant to Bureau permits or appropriate water rights obtained by the Corps.

**RESPONSE:** There is no need for the Corps to secure water rights since there will be no change in the amount of water delivered to the downstream area, and no change in the overall operation of Folsom Reservoir. The project does not include water supply. The relationship between this project and the multipurpose project is discussed in Chapter VIII of the Main Report and Chapter 17 of the EIS/EIR.

1924 Hydroelectric power generation would require a water right permit.

1925 Any hydroelectric power generation must be accomplished under water right permit.

**RESPONSE:** There will be no hydropower generation under this project.

1926 We recommend any additional Bureau water rights required at Folsom be identified. We note that Auburn Dam may enhance hydroelectric power and any enhancement should be reviewed to ensure that adequate water rights exist prior to operation in an enhanced mode.

**RESPONSE:** The project would provide only an insignificant benefit, if any, for water supply and power. The relationship between this project and Folsom Dam is discussed in Chapter VII of the Main Report and Chapter 17 of the EIS/EIR.

1924 Any dead storage volume at the proposed Auburn facility will require appropriate water permits from the State Board. Rebuilding of the cofferdam and use of the existing diversion tunnel will probably not involve water storage for at least several years.

**RESPONSE:** There will be no dead storage pool at the proposed flood control dam. The construction of the dam does not require that the cofferdam be replaced.

1895 The investigation is incomplete and needs to comply with CEQA and NEPA standards.

1955 While the document may satisfy federal EIS requirements, it does not satisfy CEQA. The report takes an unobjective view.

2199 Merging of the EIS and EIR processes is an approved way of streamlining the environmental review process. However, it does not override or eliminate the substantive requirements of either NEPA or CEQA.

**RESPONSE:** Additional information and analysis has been added to the appropriate chapters, especially Chapter 23, to assure that the project is in compliance with all laws, regulations, executive

orders, and policies applicable at this stage of the project. An explanation has also been added following each law explaining how the project complies with the law. Environmental impact analysis has been refined throughout the report and the EIS/EIR reflects a more specific mitigation plan.

1908 It is peculiar to me that, according to CEQA, you cannot just go out and cut twigs for a trail and yet the Corps is talking about scooping out the river and building a dam.

**RESPONSE:** CEQA requires that impacts associated with a project be discussed in a document made available for public review. This document is intended to satisfy that requirement. In addition, the Selected Plan does not rely upon river gravel bars for aggregate; instead, an existing quarry will be the source.

1954 If none of the alternatives are infeasible, CEQA requires the choice of one of the other alternatives over the TSP.

2006 The NED plan lacks analysis and disclosure of its primary and secondary impacts. These impacts and analyses of potential effectiveness of mitigation measures should be provided under CEQA and NEPA, as well as the monetary costs of all project features and including mitigation.

2199 The CEQA and NEPA requirements for environmental content and analysis are unaffected by introduction of the NED factor into the alternative selection process.

2200 The EIS/EIR does not rely on CEQA criteria for choosing among project alternatives. Instead, it relies on NED standards to identify the tentatively selected alternative. The analytical process required under CEQA is not provided and is inconsistent with those basic requirements of CEQA.

**RESPONSE:** NED planning principles incorporate relevant environmental analysis, including NEPA, CEQA and Section 404(b)(1). As part of the NED analysis, Chapter V of the Feasibility Report contains an analysis of the relative environmental impacts and benefits of each alternative. CEQA does not mandate which project alternative is selected, but requires an analysis of impacts and mitigation measures for reasonable and prudent alternatives. Each specifically required CEQA analysis is contained within the EIS/EIR.

1831 On the basis of comments 7-10 and other issues regarding NEPA compliance, EPA believes that the Corps should revise the DEIS and reissue it for public review. Otherwise, EPA will consider this project as a candidate for referral to the CEQ.

1949 Assessment of impacts deferred to the final EIS/EIR is too extensive, especially with regard to aggregate extraction. This is also true for mitigation. These deferrals make the EIS/EIR less than useful as a decision-making tool for the public.

**RESPONSE:** Information responding to issues raised by commentors has been incorporated into the appropriate sections of the document. The Corps feels that these refinements do not warrant a recirculation of the draft EIS/EIR. Nonetheless, additional public review of the revised document occurs during the Corps' existing Washington-level review process.

1946 The draft EIS/EIR is overly conclusive. Statements of certainty are not defined as to degree. Percentages or probabilities are not included, particularly for natural resources impacts. Where potential benefits are discussed, it is stated they "would" occur. If potential adverse impacts are discussed, the words "could" occur are used. This does not follow CEQA guidelines.

**RESPONSE:** Criteria for significance have been added or more fully explained in the respective chapters of the EIS/EIR for each of the resource category areas. Various statements regarding project benefits have been eliminated; others are more fully described or conditioned, as appropriate.

1947 The description of the no-action alternative is inadequate. It does not discuss the environmental status of no-action condition relative to other alternatives. It doesn't indicate if the no action is environmentally superior to other alternatives. Development under no action is also not examined in relation to other alternatives. None of the selected alternatives is identified as causing less damage.

**RESPONSE:** The description of the no-action alternative has been expanded in Chapters 3 and 5 of the EIS/EIR. That analysis indicates that due to residual flood damages, the environmental impacts of the no-action alternative may be quite severe. See Appendix G for a discussion of the least environmentally damaging practicable alternative. All of the chapters on the various resource categories of the EIS/EIR have a discussion on the environmental impacts of the no-action alternative. Chapter 7

**includes an analysis by FWS as to land use and fish and wildlife impacts.**

1824 As required by CEQA, all wetlands are not properly identified on pages 8-15 and 8-17.

2009 The Corps needs to complete all jurisdictional wetlands surveys and report the potential impacts of different project alternatives. Administrative jurisdiction does not excuse the Corps from full compliance with Section 404 of the Clean Water Act.

**RESPONSE: Additional information has been added to Chapter 7 to identify wetland areas which would be affected directly or indirectly by the project.**

2064 Alternatives are improperly narrow. Floodplain zoning to regulate new development should be examined in combination with other alternatives to protect existing development. Also, there is a related weakness in discussion of alternatives on the lack of analysis of intangible benefits of natural habitat with preproject environmental conditions.

2152 Section 905 of the Water Resources Development Act of 1986 includes a requirement that a nonstructural alternative to the recommended plan be described when such plan does not have significant nonstructural features. This report must follow the directive of Section 905 because the structural dry dam is the significant feature of the recommended plan.

**RESPONSE: Nonstructural measures are discussed in Chapter IV of the Feasibility Report and Appendix B. Numerous nonstructural measures were fully considered but eliminated from further analysis due to economic infeasibility.**

1834 The Corps should continue to work with project sponsors to evaluate mechanisms beyond levee and dam construction available to the State and local sponsors to provide 100-year protection. These actions should be described in the revised DEIS in accordance with NEPA, 404(b)(1), EO 11988, and EO 11990.

**RESPONSE: The process which has lead to the selection of this project alternative is described in Chapters I, IV, and VI of the Feasibility Report, the Plan Formulation Appendix (B) and Chapters 1, 2, and 3 of the EIS/EIR and Appendix G. The Corps has worked**



closely with the project sponsors to evaluate mechanisms beyond levee and dam construction available. None of these measures were found to be usable. The Corps has complied with Executive Orders 11988 and 11990 in its plan formulation and selection process.

1837 CEQ directs that EPA's position regarding compliance with Section 404(b)(1) guidelines be documented in the FEIS but due to a lack of information in the DEIS, EPA is unable to make a positive determination of compliance.

**RESPONSE:** Additional information has been added to Chapter 6 of the EIS/EIR and Appendix G to clarify this project's relationship under Section 404(b)(1) guidelines.

1947 The draft EIS/EIR does not provide comparative discussion of merits of alternatives in the chapter on alternatives. This information is scattered throughout the report. Summary comparison of environmental impacts of alternatives should be included in the alternatives chapter. Tables 1-2 and 1-3 should be referred to in this chapter.

**RESPONSE:** Chapters 19, 20 and 21 of the EIS/EIR contain discussions on the relative environmental merits of the alternatives. Moreover, Chapter V of the Feasibility Report compares benefits and environmental impacts of the alternatives. EIS/EIR Tables 1-2 through 1-15 (formerly Tables 1-2 and 1-3) are referred to in Chapter 1, the Summary Chapter.

1978 CEQA requires that environmental (and cultural) resources which will be impacted be disclosed in the EIR for circulation, review and comments.

**RESPONSE:** The discussion in Chapter 9 of the EIS/EIR has been expanded to more completely describe the baseline cultural and paleontological resources and potential project impacts on such resources. The status of negotiations with the State Historic Preservation Office is also discussed.

1656 The project description is legally insufficient. Portions of the project which have significant impacts are ignored or vaguely described, i.e., discussion of aggregate extraction should describe the years required for dam construction in addition to the amount of material. The specific method of transport of material and processing should be included.

1967 Information on aggregate mining is required by CEQA to be circulated for public and agency review.

**RESPONSE:** Additional information has been added to Chapters 2, 3, 7, 8, 12, 13, and 17 of the EIS/EIR describing the project and explaining impacts which will result from the aggregate extraction, transportation and processing required for dam construction. Additional background environmental information is compiled in Appendix M.

1836 The Corps must consider the reasonably foreseeable future events (i.e., growth and development) anticipated to occur between the years 20 and 100 consistent with the project life of 100 years (NEPA 40 CFR 1502.22).

**RESPONSE:** The Corps has included a discussion of the impact of reasonably foreseeable development which will occur under existing approved local plans in Chapters 4, 5, 6, 7, 8, 9, 11, 12, 15, 17 and 18. There has been added discussions on development which is proposed in the south Sutter County portion of Natomas. In addition, Chapter 7 contains impact projections by FWS that consider a greater amount of development and its impacts on fish and wildlife resources. At this point in time, it is difficult to completely and accurately predict where the growth will occur or the extent of such growth; though, it is not unforeseeable that development will never exceed the present adopted plans.

1843 The potential loss of riparian, wetland, and aquatic habitats caused by increased erosion and degradation of the upper and lower river channels should be fully evaluated as required by NEPA.

**RESPONSE:** The impacts to riparian, wetland, and aquatic habitats are discussed in detail in Chapters 8 and 9 of the EIS/EIR and Appendices G and Q. Full mitigation for those impacts is discussed in Chapters 7 and 22.

1912 We have a complete end-run around the new federal regulations that beneficiaries pay the up-front cost.

**RESPONSE:** The plan calls for the nonfederal sponsors to pay their full share of project costs as required by federal law. Because this is a flood control project, only the areas receiving some benefit from the flood protection would pay for the local share of the project. If, at some time in the future, a decision is made to convert the structure to a multiple purpose project, the

beneficiaries of the water or power would be required to pay for the studies and construction actions to develop those resources.

1926 We recommend required petitions for extensions of time and changes to existing Bureau permits be identified and a schedule for action be included in order that water right requirements are fully disclosed and insure that operation is not impeded for development of the Auburn site for water supply and power purposes.

RESPONSE: The relationship between the flood control project and the proposed multipurpose dam is discussed in Chapter VIII of the Feasibility Report. Any other aspects of the proposed multipurpose structure will be fully discussed in any environmental documents to be prepared by the Bureau of Reclamation.

1657 Absence of finite project description curtails meaningful discussion of direct and indirect environmental issues. This appears to be a one-sided presentation in favor of the project.

RESPONSE: Every effort has been made to fully present an appropriate level of detail concerning the environmental impacts which are associated with the project. Chapter VII of the Feasibility Report and Chapter 2 of the EIS/EIR contain a full and complete project description.

2064 Many aspects of the TSP and alternatives could impact surface waterflow amounts, timing and quality. They could impair the State's sovereign ownership and public trust resources. The State Lands Commission is a trustee agency, managing trust values associated with ownership of sovereign lands.

RESPONSE: Surface waterflow impacts for the Selected Plan would occur only during time of floodflows; thus, no adverse effects are anticipated. The project does not contain any component that would implicate the State's sovereign ownership or public trust resources. The relationship of the Selected Plan to the role of the State Lands Commission is discussed in Chapter 23 of the EIS/EIR.

1925 Detention of peak floodflows for regulated release into the American River is likely to enhance the quantity of water available for downstream uses. Since it may affect or enhance

other appropriative rights, the project should be reviewed to determine whether the damsite should be listed as a point of diversion under other appropriative rights if it isn't constructed with its own permits.

**RESPONSE:** The project is designed to temporarily detain water behind the dam only during flood events. Chapter VII of the Feasibility Report, Chapter 2 of the EIS, and Appendices K and L discuss the details of the way the project functions during storm events. Chapter 23 discusses why there is no need for any water rights approvals.

- 1830 The draft EIS/EIR fails to comply with NEPA and CEQ's regulations for the implementation of NEPA because it does not adequately discuss the means to mitigate adverse, direct, indirect and cumulative impacts.
- 1978 Illusory mitigation measures from traffic engineering studies and transportation plans is clearly a violation of the disclosure and mitigation requirements of CEQA.
- 1980 Most of the mitigation measures are not worded as mitigation but as suggestions. This is not acceptable under CEQA.
- 2009 The discussion of direct and indirect impact mitigation for fish, vegetation, and wildlife is incomplete and undefined. Please identify the lack of a mitigation plan and mitigation monitoring program as required by CEQA for the proposed project.
- 2097 The document must be prepared to satisfy NEPA requirements for federal review, and independently the requirements of CEQA for State review. While recent Supreme Court decisions do allow federal agencies to avoid the identification and implementation of mitigation measures in advance, CEQA allows no such escape. The draft's failure to identify mitigation renders it useless for State approval.
- 2208 The draft EIS/EIR is inadequate in that it asserts that the mitigation of the indirect impacts arising from the project will be identified and provided by the local governments having land use authority for the Natomas and lower American areas. CEQA is violated when means for mitigation are not described in an EIR and adopted by the lead agency.
- 2208 CEQA is violated when a lead agency approves a project having a mitigation measure that requires a project proponent to determine how to mitigate a prospective impact in the future. The public and decision-makers are deprived of the opportunity

to consider the effectiveness of such a future mitigation measure.

**RESPONSE:** In most resource areas, specific mitigation measures have been elaborated upon in the EIS/EIR. Chapter 22 contains a complete summary of project mitigation measures. The adoption of specific mitigation measures under NEPA and CEQA, however, does not occur until the lead agency makes findings and renders its decision to approve or carry out a project. Moreover, with respect to secondary impacts, it is appropriate on a practical level to implement mitigation through those agencies with local land use authority. This approach is consistent with NEPA and CEQA.

1978 Mitigation proposed for air quality is inadequate under California statutory and case law. They must be specific implementable actions which are mandatory. Yours are too loosely worded.

**RESPONSE:** Neither the Corps nor The Reclamation Board has jurisdiction over most, if not all, air quality issues related to the project; therefore, it is appropriate that other agencies with such authority adopt and implement air quality mitigation measures. Nonetheless, the Air Quality Chapter has been expanded to include more detailed analysis and mitigation measures. See also Chapter 23 regarding compliance with the Clean Air Act.

1658 It is legally deficient for the document to say that local governments will mitigate for induced growth in the floodplains (indirect growth). The report must quantify the significance of impacts and provide a meaningful mitigation. The Corps' approach illegally piecemeals the environmental discussion of impacts.

**RESPONSE:** The EIS/EIR discusses the impacts which could result from those projects and developments which are considered to be reasonably foreseeable (see Chapters 17 and 18), and has provided a discussion of the mitigation strategy which has been developed, and continues to be refined, by SAFCA and the local governments involved to implement necessary mitigation. NEPA does not require federal agencies to adopt or impose mitigation measures for secondary impacts. CEQA authorizes a lead agency to defer adoption of mitigation measures to local agencies.

1869 Not including an analysis of the multipurpose dam is in conflict with federal law (NEPA) and economic and

environmental principles and guidelines for water and land resources.

**RESPONSE:** All analyses of this project were accomplished in accordance with principles and guidelines for federal water resources projects. A generic discussion of a multipurpose reservoir is provided in Chapter 17 of the EIS/EIR and Chapter VIII of the Feasibility Report. It is not appropriate to include a full analysis of the multipurpose project because its construction is speculative and remote for the reasons provided in Chapter VIII and Chapter 17.

1840 To comply with Section 404(b)(1) guidelines, the proposed project must not violate water quality standards, toxic effluent standards, or jeopardize the continued existence of federally listed (threatened or endangered) species or their critical habitat.

**RESPONSE:** As discussed in Chapters 5, 6, 8, and 23 of the EIS/EIR and Appendices G and P, the project is in compliance with applicable laws concerning water quality and endangered species.

1868 How a report can be prepared which ignores a multipurpose dam is not understandable, nor in compliance with CEQA and NEPA.

1870 The Selected Plan has not been developed in accordance with the applicable national environmental statute in that the DEIS only discusses construction of a multipurpose dam as a possible future cumulative impact, not as an alternative.

1870 The multipurpose dam is an alternative that meets federal and State requirements for an alternative which must be discussed in the Corps' environmental document.

**RESPONSE:** For the project authorization presently sought by the Corps and the nonfederal sponsors, a multipurpose dam does not appear to be a reasonable and prudent alternative. The relationship between this project and a multipurpose project is discussed in Chapter VIII of the Main Report and Chapter 17 of the EIS/EIR.

1947 The draft EIS/EIR does not describe a reasonable range of alternatives to the TSP. Corps reasoning for excluding alternatives is overly conclusionary and too general.

2008 Given the local sponsor's demand for 200-year protection and the Corps-mandated NED criteria, the discussion of feasible alternatives is inadequate under CEQA and NEPA. The provision of only one 200-year alternative does not provide adequate basis for analysis, at least two must be presented. All alternative components should be defined.

1661 In summary, your report is legally deficient because it fails to describe the project adequately, fails to discuss reasonable alternatives, and misstates or understates environmental impacts.

1947 The amount of discussion of each alternative is not proportional to the degree the alternative reduces environmental damages. Alternatives that exclude flood control would reduce environmental impacts. They may impede your objective but under CEQA they should be given more attention.

1949 The summary of the TSP and impacts is legally inadequate. No identification of alternatives that would reduce or avoid such effects are made. Important areas of controversy raised by public agencies and individuals are not included. Neglected areas of concern include earthquake risk and dam conversion to a multipurpose facility.

**RESPONSE:** The project alternatives selection process is discussed in Chapters V and VI of the Main Report, Chapter 2 of the EIS/EIR, and the Plan Formulation Appendix (B). The various rationale for deleting other flood control measures and alternatives have been more fully explained. In addition to the Selected Plan, five other alternatives that could provide 200-year protection were considered but were rejected for a number of economic and practicability reasons. The Selected Plan is described in detail in Chapter VII of the Feasibility Report and Chapters 2 and 3 of the EIS/EIR. Impacts resulting from the project are fully discussed in Chapters 4 through 16 of the EIS/EIR, and in Appendices E, F, G, H, P and Q. Earthquake risk and related seismic issues are discussed in Chapter VIII of the Feasibility Report.

1830 The DEIS fails to comply with NEPA and the CEQ's regulations for implementation of NEPA because it doesn't adequately discuss compliance with environmental statutes including the Clean Water Act and the Clean Air Act.

**RESPONSE:** The discussion in Chapter 23 of the EIS/EIR explains how the project is in compliance with all applicable laws, regulations, policies, guidelines, and plans. Revised Chapters 6 and 12 discuss, respectively, water quality and air quality issues, impacts and mitigation and the projects applicability.

1945 A map showing the entire region from the Auburn Dam site to the Yolo Bypass, a detailed map, and regional map should be in the project description, not just a reference to the Main Report.

**RESPONSE:** Appropriate maps, labeled Plates 1 and 2, are in the Feasibility Report. There are also locational maps in the Executive Summary. NEPA and CEQA do not require location maps to be in any particular part of the report.

1657 Under California law, providing a project description in the response to comments mandates that the EIR be resubmitted for further public comments. We believe that the draft EIR should be modified to include information requested.

**RESPONSE:** The project features were described in the draft report and are more fully explained in Chapter VII of the Feasibility Report and Chapters 2 and 3 of the EIS/EIR. Additional information has also been added to appropriate chapters to clarify the project description.

1658 The discussion of indirect irreversible impacts is legally insufficient. Those impacts include the loss of agriculture land, the loss of wetland necessary for migratory birds, and cumulative air pollution problems.

**RESPONSE:** Indirect impacts of the project on agriculture, wetlands and air quality are discussed in the EIS/EIR. Impacts to Agriculture lands are discussed in Chapters 4 and 10 of the EIS/EIR. Impacts to wetlands and migratory birds are contained in Chapters 6, 7 and 8. Impacts to air quality are contained in Chapter 12. Additional information on each of these topics is contained in Chapters 17, 18, 19, 20, and 21.

1836 Environmental Protection Agency doesn't believe that the Corps has complied with the Clean Water Act and believes that Congress should not exempt the proposed project under Section 404 (r) as the Corps has requested.

**RESPONSE:** This topic is fully discussed in Chapters 6 and 23 of the EIS/EIR and in Appendix G.



- 2056 Section 5(d) of the Wild and Scenic Rivers Act requires all federal agencies to consider potential wild, scenic, and recreational river areas "in all planning for the use and development of water and related land resources". The Corps wholly fails to address the potential of the Middle and North Forks for designation and protection as a wild and scenic river.
- 2057 The decision to manage a potential wild and scenic river for uses other than as a component of the national rivers system irretrievably commits the resources of such rivers and their immediate environments, and requires site-specific environmental analysis.
- 2057 The Corps must undertake a supplement to the present feasibility study that considers, with the participation of the Forest Service, Bureau of Land Management, and other federal and State agencies, the suitability of the Middle and North Forks for inclusion in the wild and scenic rivers system. We hereby formally request that the Corps initiate such a study.
- 2057 The Corps' failure to assess the possibility of managing and protecting the Middle and North Forks as wild and scenic also violates NEPA.
- 2056 The draft feasibility study fails to fulfill the Corps' responsibilities under NEPA and the Wild and Scenic Rivers Act.
- 2057 In the absence of such detailed evaluation of the potential value of the Middle and North Forks as components of the national wild and scenic rivers system, the Corps cannot properly assess the public interest that would be affected by its proposed flood control project.
- 2056 The North and Middle Forks are free flowing, and possess conspicuous natural, cultural, and recreational values that plainly appear to qualify them for inclusion in the national rivers system. The feasibility study acknowledges these values, as well as the significant scenic values of the canyons and their concentration of historic sites.
- 2057 In order for the Corps to properly assess the public interest affected by its proposed flood control dam, it must weigh and balance the strong national interest in protecting the Middle and North Forks in free-flowing condition against any interests which damming the river will serve.
- 2056 The failure of the Corps to evaluate the potential of the Middle and North Forks for inclusion in the national wild and scenic rivers system in your current investigation is in

direct violation of Section 5(d) of the Wild and Scenic Rivers Act.

- 2057 Approval of the proposed project, in absence of full evaluation of the Middle and North Forks suitability for inclusion in the wild/scenic rivers system, would be arbitrary and capricious, and in direct violation of NEPA and the Wild and Scenic Rivers Act.

RESPONSE: As discussed in Chapter 14 of the EIS/EIR, the project will not have significant adverse effects on recreation values in the upper American River canyon. In particular, the project will have no effect on the stretch of the North Fork between Colfax and the Iowa Hill Bridge. Even during project construction, there will be only minimal disturbance of recreational activities. Chapter 14 discusses the suitability for classification of the North Fork and Middle Fork as "wild and scenic." In compliance with Wild and Scenic Rivers Act, the Corps of Engineers is cooperating in an interagency study with the Forest Service, National Park Service, Bureau of Reclamation and Bureau of Land Management of the Middle and North Forks of the American River and their eligibility and suitability for inclusion in the national wild and scenic rivers System. Downstream alternatives were rejected, in part, because they posed a serious threat of adversely affecting the "wild and scenic" values of the lower American River.

- 1945 The project description should include the intended uses of the EIS/EIR, a list of the agencies expected to use the EIS/EIR, and a list of approvals for which the EIS/EIR would be used.

RESPONSE: Chapter 27 of the EIS/EIR discusses the intended use of the document, contains a list of agencies expected to use the document, and has a table showing the various approvals for which the document may be used.

- 1979 To state that a lack of attainable information prevents analysis of impacts and mitigation is in violation of CEQA.

RESPONSE: The CEQA guidelines provide that the evaluation in an EIR on the environmental impacts of a project need not and cannot be perfect or exhaustive. Sufficiency of the document is measured by what is reasonably feasible.

- 2064 The State Lands Commission holds fee title to the bed of the lower American River from Nimbus Dam to the Sacramento River.

Any proposed construction including riprap is subject to Commission permit authority. The Commission may act as both a responsible agency and trustee agency.

**RESPONSE:** Chapter 23 of the EIS/EIR acknowledges the role of the State Lands Commission over the beds of navigable waters. The Selected Plan does not contemplate any additional use of such lands.

2146 The February 1991 Fish and Wildlife letter raised the issue of the TSP being contrary to federal policy contained in certain executive orders (EO 11988 and EO 11990). Since the U. S. Constitution establishes supremacy of federal laws over state and local laws, the Corps should explain why the executive orders do not apply in this case.

**RESPONSE:** Clarifying language has been added to Chapter 23 of the EIS/EIR explaining why the Selected Plan is consistent with EO 11988 and EO 11990.

2070 The draft is inadequate and incomplete. All issues raised by DFG should be resolved and draft resubmitted for public review. Otherwise, under California Endangered Species Act, findings of jeopardy would be necessary based on mitigation proposed for impacts to threatened and endangered species.

**RESPONSE:** The ARWI's local sponsors are currently developing specific mitigation plans for the State-listed species that would be impacted by the project (GGS and Swainson's hawk). These plans are being drawn up in consultation with DFG. All significant endangered species impacts will be mitigated to insignificant levels. Chapters 8 (Endangered Species) and 22 (Mitigation and Environmental Monitoring) have been revised to include the most current available information on the mitigation plans being developed. A detailed description of the local sponsor's habitat conservation planning process is included in Appendix P. The Corps of Engineers has determined that it will not be necessary to recirculate the EIS/EIR.

2056 The TSP would periodically inundate the canyons and irretrievably foreclose wild and scenic river designation. The fact that the Middle and North Forks are not at present listed on the Nationwide Rivers Inventory (NRI) compiled by the Park Service does not absolve the Corps of its responsibility to evaluate the potential of these rivers pursuant to the Wild/Scenic Rivers Act.

**RESPONSE:** The suitability of the upper American River canyons for wild and scenic river designation is currently being investigated. Findings for some reaches have already been made. The most current available information is presented in Chapter 14 (Recreation).

## LEVEL OF PROTECTION

247	276	1589	718	956	1450
1628	1592	74	8	314	9371
335	459	1362	1433	1561	1502
1698	1751	2005	241	519	704
74	89	1000	1757	1801	1861
1775	958	961	963	960	962
964	959	2082	1120		

Common Comment #9 - Why is the Corps proposing four times the federal standard for flood control?

- 72 400-year flood protection is too excessive.
- 561 400-year level of protection is extreme and not essential.
- 560 400-year level of protection is extreme.
- 751 400-year protection is not consistent with intelligent thinking.
- 713 400-year protection seems excessive.
- 320 400 years of flood protection is unnecessary.
- 889 This 500-foot-high dam seems far in excess of the federal requirements for flood control.
- 363 The proposal for 400-year flood control is clearly exorbitant.
- 1892 I support 100- or 150-year protection, not 400-year.
- 959 400-year protection is too extreme.
- 1892 This dam is overkill. It provides much greater flood protection than Sacramento actually needs.
- 1096 I am concerned that the Corps pulled a 400-year standard out of thin air.
- 1120 It is not necessary to have 400-year protection.
- 1888 It is unrealistic to consider the construction of a dam to provide 400-year protection for the Sacramento area.
- 1101 We don't need 400-year protection because FEMA doesn't require it.

- 855 The dam's ability to provide 400-year protection is simply not necessary to provide the needed flood protection for Sacramento.
- 562 400-year flood protection is extreme.
- 685 400-year level of protection is extreme for this area.
- 1895 400 years is an extreme measure for flood control.
- 711 400-year protection is excessive for California.
- 974 400-year flood is a ridiculous criteria for damning the river. You know it and I know it.
- 1141 400-year protection in an arid state is extreme.
- 973 400-year flood protection is extreme for an arid state like California.
- 1451 400-year protection is extreme and taxpayers should not subsidize it.
- 1521 400-year protection is too high.
- 7 Your preferred alternative for the Auburn Dam site is one of the more preposterous and outrageous examples of "overkill" that I have come upon in recent California water politics history. Your proposal calls for a dam which provides four times the federal standard for flood control.
- 2042 Is 400-year protection really necessary?
- 2153 The recommended plan would provide an anomalous degree of protection from flood damage to one area of the country at considerable cost to taxpayers nationwide. Federal funds and outstanding habitat would be sacrificed to protect against damage from an exceedingly rare event.

**RESPONSE:** The Corps used the Water Resources Council's principles and guidelines for "Planning Water Resources Projects" for developing the most cost-effective plan, the National Economic Development Plan, which corresponds to the 400-year plan. At the request of the local sponsor, the 200-year plan will be recommended as the Selected Plan. The FEMA 100-year level of protection is a minimum standard used for the National Flood Insurance Program for actuarial purposes, not necessarily as a design standard. The local sponsor, based on the studies of remaining flood damages at the lower levels of protection, the threat to life studies, and studies showing short evacuation times, requires protection greater than the 100-year for the people of Sacramento Area. These studies are discussed in Chapters III, IV, V, and VI of the Feasibility

**Report and in Appendix B, Plan Formulation, and Appendix C, Economics.**

- 65 The federal government only requires 100-year flood protection.
- 1183 Why should Sacramento expect federal, State and local taxpayers to buy them four times the level of protection required by FEMA?
- 1185 Is 400-year flood control, when FEMA only requires 100-year, a priority over education, the environment, upkeep of our infrastructure, and other societal problems? What happens when 400-year protection is no longer good enough?
- 1187 We can achieve 150-year protection by improving existing structures, namely the levees and Folsom. FEMA only requires 100-year protection.
- 1079 Flood protection must be directed toward 100-year.
- 502 100 plus year protection could be achieved without a dam. The 100-year level is simply a requirement for federal flood insurance.
- 31 As I understand it, the 100-year level of protection could be attained without a dam at the Auburn site.
- 664 Sacramento can achieve the federal (100-year) standard without a dam at the Auburn site.
- 15 Is it really necessary to exceed federal standards without utilizing methods of control already at hand?
- 517 The Sacramento area, as it is, must be protected but not to the extent of 200- or 400-year levels.
- 2034 Your plan calls for greater flood protection than Sacramento needs.
- 2146 It is rare for flood control to exceed 100-year protection. Why should taxpayers provide Sacramento with excessive flood protection? If higher levels are desired, State and local agencies and those who would benefit should pay for it, not federal taxpayers.
- 2059 Adequate flood control alternatives meeting federal standards without a dam are available at less cost and less impact on the existing plant and animal habitat within the river system.

1957 One-hundred-year FEMA protection is adequate to meet the project purpose and is consistent with flood control goals in most of our nation's watershed.

**RESPONSE:** The National Flood Insurance Program requires a minimum 100-year protection for first habitable floor of structures. This 100-year level of protection could be achieved for the Sacramento area without an upstream detention dam by constructing a greatly expanded and raised levee system and reoperating Folsom Reservoir (at the expense of water supply and recreation uses). The local sponsor has supported a plan which provides a minimum of 200-year protection to the Sacramento area for the reasons described in the response on the previous page. This 200-year plan can only be achieved by the addition of upstream flood protection capacity.

1960 The DEIS is unclear as to whether Natomas and many areas of north Sacramento are actually provided 400-year protection.

2053 It is my understanding that the 400-year flood protection offered by the project would provide much less protection for many areas of Sacramento.

2187 Some of the areas in Sacramento's floodplain, which experienced flooding in '86, would not be protected by the flood control project. Please provide a description of the areas flooded in 1986 and the ability of the TSP and the alternative plans to prevent the flooding from occurring in the future.

**RESPONSE:** The EIS explains that those areas of Sacramento within the floodplain of the American River will receive protection from American River floods. However, some portions of Sacramento will remain exposed to high flows from local streams located east of Natomas. These flooding problems are being addressed by local agencies. A residual floodplain exists within Natomas also. Appendix C, Economics, contains maps which show the residual floodplains. The 1986 flood is described in Chapter 3 of the Main Report.

27 I am opposed to a level of protection for flood control that destroys the American River.

244 You should let it go natural and flood, go through the natural cycle.

246 Alternatives exist that would meet federal standards and leave intact 40 miles of riparian habitat along the forks of the American.



465 An increase in storage would only benefit landowners who want to built or have built on land they knew was subject to flooding. Taxpayers should not subsidize such foolishness.

724 California is not wet enough for 400-year flood control protection.

**RESPONSE:** The 400-year level of protection is based on the historical floodflows in California. The TSP, or 400-year plan, has been replaced with a locally preferred plan providing 200-year level of protection. The Selected Plan will protect the values of the lower American River.

157 Sacramento does not need additional flood protection since it already passes the national 100-year flood protection standard.

**RESPONSE:** The 1988 FIA restudy of the Sacramento area showed that many levees provide less than 100-year protection. This restudy is the impetus for the current study resulting in a recommendation for additional flood protection.

1176 Why should an elected official in another part of the country vote for this project when many other places in the U. S. don't have similar levels of protection?

986 Why is the level of protection so high when the level around the Mississippi is only 150-year?

14 No other city in the country has greater than 100-year flood protection.

**RESPONSE:** Appendix G, Section 404, Evaluation, describes many cities with greater than 100-year protection. Those similar to Sacramento with large residential areas in floodplains include Louisville, KY; St. Louis, MO; and New Orleans, LA; all with 500-year protection systems. The appropriate level of protection is a function of the type of property and value being protected, the threat to life in the protected area, ease of evacuation, and other factors described in Appendix B, and Chapters III, IV and VI of the Feasibility Report.

1664 The dam won't adequately protect Sacramento anyway.

204 The kind of level of flood control will be far more damaging to wildlife and agriculturalists than you suspect.

1941 Your structure holds seven times the amount of water as the old diversion tunnel. You get seven times the water, you have to have seven times the runoff, which means seven times the rainfall. 7 x 3 feet is 21 feet in five days. We need to know the dimensions of a 400-year flood before spending millions of dollars on this project.

**RESPONSE:** The hydrologic and flood routing studies are presented in Appendices K, Hydrology, and L, Reservoir Regulation.

1920 TSP appears to provide us with the highest level of flood protection for the least reasonable cost.

1875 We support 400-year protection.

1871 We support the level offered by the Corps.

2178 It is unclear how meaningful the determination of flood benefits between the 200- and 400-year level really is. The Corps' analysis indicates that the Sacramento River flood control system is overwhelmed by events in excess of 200 years. It would appear that only a few areas adjacent to the American River would actually experience 400-year protection.

**RESPONSE:** The TSP, or 400-year plan, has been replaced with a locally preferred plan providing 200-year level of protection.

2130 The Reclamation District feels very strongly that any change in the flood control system as outlined in your report, which constitutes a betterment of those facilities, should not discriminate or jeopardize in any manner, those facilities and/or level of protection now afforded landowners within the District.

2130 The mitigation measures requested by the Board of Trustees of this District from the planned work within Natomas area shall include some type of work or relief whereby the protection level of flood control structures of this district are not downgraded.

**RESPONSE:** There would be no loss of benefit of existing facilities and no loss of protection. The Corps will work closely with your staff during the design phase of the project.

2124 Figure III-1 shows that the '86 storm produced an unregulated six-day runoff volume that was 15 percent higher than any

other in 81 years. We know that there is a 37 percent chance of a 100-year flood will occur in the next 82 years. Due to the magnitude of the '86 flood, is it not likely that this exceeded the 100-year return interval?

**RESPONSE:** A probability analysis was made using flood events for 81 years of record including the 1986 event. This analysis determined that the 1986 event was about a 70-year event.

2124 I understand the expected probability adjustment was made in your analysis. This is to account for uncertainty in the data. The idea is that a data set is more likely to underestimate the magnitude for a given return interval than overestimate. It appears this method was used to justify a dam. Has anyone analyzed the meteorology of this?

**RESPONSE:** The February 1986 storm was fully considered in developing the hydrology for this study and is documented in Appendix K, Hydrology. The rationale for using the expected probability adjustment is described in Appendix K.

2188 Various statements in the report regarding depths of water in the floodplain seem inconsistent. Please provide a clear chart or map of base flood elevations at various locations in the floodplain based on a variety of levee failures or overtopping scenarios. Specifically, please provide maps of flood elevations in Natomas, assuming a levee break on the American and, on another map, a break on the Sacramento River.

**RESPONSE:** Detailed elevations for various flood conditions have been developed for economic evaluation and are summarized in the Economics Appendix in tables titled "Frequency-Return Relationships Under Existing and Project Conditions".

2123 All the alternatives examined provide up to 400-year protection, except for modifications for the Fremont Weir and Yolo Bypass, which are based on 100-year protection. We feel project features should be designed with uniform criteria.

**RESPONSE:** All project features are designed to provide similar levels of flood protection to the entire floodplain area.

2259 The implication of this report is that the City and County of Sacramento will be provided with certain levels of protection

according to which alternative is implemented. However, these areas will still be subject to flooding from the Sacramento and Feather River watersheds. According to the Sac Metro study, the system designed to handle those flows fails in a 200-year event.

**RESPONSE:** As stated in Chapter 17, Cumulative Impacts, of the EIS/EIR, the Sacramento area could withstand a 200-year event on the Sacramento River because projected levee failures upstream of the Sacramento metropolitan area would allow massive volumes of floodwater to leave the system, thereby allowing the peak flow of the storm to pass by without any local levee failures. It was also determined that controlling flows on the American River prevented flooding of south Sacramento from both the American and Sacramento Rivers for floods up to 200 years by reducing American River flows into the Sacramento River at their confluence. The Yolo Bypass conveys the majority of Sacramento River floodwaters to the west of the City of West Sacramento and eventually discharges them into the Delta near Rio Vista.

2243 It is reasonable to assume that having received 200- to 400-year protection that the local governments would seek the same level of protection from interior sources of flooding and from flooding from the Sacramento River. Please describe the projects needed to accomplish this and the cumulative impacts of these projects.

**RESPONSE:** Protection from interior sources of flooding and from the Sacramento River is addressed in Chapter 17, Cumulative Impacts, of the EIS/EIR. A summary of the scope of local tributary projects which addresses interior flood protection is included. A summary of the scope and findings of the Sacramento Metropolitan Area Investigation, which addresses flood protection from the Sacramento River in the Sacramento and West Sacramento urban areas, is also included. Chapter 6, Drainage And Water Quality, of the EIS/EIR describes the impacts associated with interior drainage projects in Natomas and along the American River. The draft Sacramento Metropolitan Area Feasibility Report, Chapter 5, describes the environmental impacts associated with implementation of the tentatively selected plan. A more detailed discussion is located within the Sacramento Metropolitan Area Draft EIR/EIS, Chapter 22.

2259 An analysis of the true cost of attaining any level of protection for Sacramento for any of the recurrence intervals examined by the Corps must include the costs of flood protection measures to be undertaken in these other

watersheds. Without them, the Corps' economic analysis is incomplete.

**RESPONSE:** The Feasibility Report explains that those areas of Sacramento within the American River floodplain will receive protection from American River floods. The Draft Sacramento Metropolitan Area Investigation Feasibility Report explains that the area of West Sacramento will receive protection from the Yolo and Sacramento Bypasses. The economic evaluations were completed in accordance with guidance for civil works planning studies by the Corps of Engineers. The costs associated with each project were related to the benefits associated with the specific area protected by each project. Chapter 17, Cumulative Impacts, and the Draft Sacramento Metropolitan Area Investigation, Chapter 3 (Problems and Opportunities for Resolution) state that improvements upstream to confine more floodwaters within existing or new flood control channels could increase the volume of flood water reaching the Sacramento metropolitan area causing higher stages which may cause levee failure locally. In that case, it may be necessary to include mitigation measures for this adverse hydraulic impact.

## MINIMUM POOL DAM

1944 Appendix D fails to adequately analyze minimum benefits pool.

RESPONSE: Appendix D is a water needs evaluation for the American River watershed. The water supply amounts are based on present water right and water contracts. If a water delivery system is needed, it would have to be funded by a nonfederal entity. A nonfederal sponsor was not identified to pay for necessary features of a minimum pool alternative, after contacting a wide range of potential sponsors.

## **MITIGATION**

2069 Erroneous assessment of vegetation and wildlife impacts has led to grossly inadequate mitigation measures. Suggest use FWS conclusions and recommendations, particularly the 1/3 Natomas plan and revaluation of 100-year alternatives.

**RESPONSE:** A detailed description of project impacts on vegetation and wildlife is included in Chapter 7 of EIS/EIR and elsewhere as appropriate. The 1/3 Natomas plan is not an economically, socially, or environmentally viable option for the Natomas area (see Chapter VIII of Main Report).

1954 Very nonspecific. Should be specific and identified for each impact.

2158 Any mitigation commitments must be designed so that they are an indispensable part to the overall project. In other words, if any construction funding or activities occur, these must be tied to concurrent funding and implementation of required mitigation measures.

2158 We recommend all of the following as required mitigation measures: a prohibition on new developments in the deepest portions of the floodplain; acquisition and restoration of Natomas wetland and riparian habitats (to, among other things, protect and recover federal and State-listed species); minimize impacts on existing habitats within the American River Parkway (and require full mitigation for any unavoidable habitat losses); and require some Folsom Reservoir water to be allocated to maintain downstream fisheries.

2182 The document is more specific in the negative impacts believed to be associated with the less desirable alternatives, than with the TSP. Therefore, mitigation measures are more specific when applied to these areas.

2182 The impacts of fish and wildlife receive the most attention from mitigation measures. This may be more than a coincidence since the Fish and Wildlife Service conducted the assessment. When the EIR is produced, according to CEQA, it must state which mitigation measures are adopted by project proponents and which are not.

2148 The FWS proposed 121,872 acres of mitigation on the South Fork or 140,078 acres along the Cosumnes. The Corps' mitigation strives to reduce project cost by doing less. This is a mistake. There is no way to require mitigation

after the dam is built. The time to institute the FWS mitigation plan is now.

- 2138 Mitigation measures must be adopted with an EIR according to CEQA if they are feasible. If not adopted, the preparing agency must show either that they are not feasible or that they are within the responsibility of another agency which has adopted them or should adopt them.
- 2093 Cumulative impacts of many other water projects in the State should be considered. Tremendous destruction has already occurred; the remaining rivers are irreplaceable jewels. But having evaded this issue, the DEIS/EIR is fundamentally inadequate. Further, the tentatively selected plan is based on a major underestimation of the importance of the environmental impacts. This is totally unacceptable.
- 2119 Combining the need for open space around the Sacramento Metropolitan Airport with the need for maintaining wildlife cover values could be a useful mitigation measure.
- 2170 The impacts of the original project for total loss of habitat in the canyon has, to a large degree, already been mitigated.
- 1961 We support compatible elements for the protection of the American River including, environmental mitigation that includes allocation of Folsom Reservoir and other CVP water for anadromous fish, preservation and management of wetlands and associated uplands.
- 2196 Where practical, mitigation measures are to be planned for concurrent implementation with other major project features, yet that is not being planned in this case. Refer to PG paragraph 5-7.
- 2194 The mitigation for the last two major Corps projects in California (Warm Springs Dam and New Melones Dam) has never been completed. The Corps' record for levee mitigation is notoriously poor. Please provide an analysis of prior Corps mitigation efforts.

**RESPONSE:** Mitigation measures are identified for all but a few impacts in Chapter 22. Chapter 21 identifies the unavoidable unmitigable impacts. Mitigation measures are formally adopted only when a decision is made to go forward with the project.

- 1885 I don't think that the costs for mitigation were shown in your document.



**RESPONSE:** Costs associated with mitigation can be found in Chapters V and VI of the Main Report.

1878 Mitigation and the costs of the environmental impacts haven't been significantly addressed.

1890 The Corps' position is that they are going to do a postflood remediation. How do you remediate dead animals?

2196 Appropriate mitigation to address effects on fish and wildlife should be determined in consultation with federal and State wildlife agencies - not independent contractors. Consultation is required by the Fish and Wildlife Coordination Act. Additionally PG 7-49 requires the use of habitat-based evaluation methodologies which McClelland did not use.

**RESPONSE:** Fish, wildlife, and vegetation impacts associated with this project and related mitigation plans are identified in Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR.

1844 There is inadequate information on the proposed mitigation for EPA to be assured of full compensation. Mitigation has not been finalized. We believe it should be published in the revised DEIS.

1844 Proposed mitigation for the temporary upstream inundation impacts may not be adequate since it may not fully compensate for acres, values and functions. Also, mitigation which must be continuously replaced or maintained isn't successful or adequate.

2208 The DEIS's discussion of mitigation is woefully inadequate. It fails to provide any mitigation measures for identified impacts. The assessment of potential impacts for alternatives is entirely conclusive and without any supporting information. These discussions are inadequate and should be expanded.

**RESPONSE:** Mitigation for the Selected Plan is in Chapter 7 of the EIS/EIR. The mitigation plan reflects ongoing coordination and updated information received between the draft and final EIS/EIR.

1844 The significant disagreement between FWS and Corps regarding the extent of impacts makes it difficult to determine the amount and type of mitigation required.

2160 The Corps' mitigation seems based on a small base of fact and large base of assumption. The draft is also deficient in failing to resolve the differences between the Corps and the FWS. How much will a compromise cost? Is the mitigation proposed by the FWS any more than they would propose for a multipurpose dam?

**RESPONSE:** Chapter 7, Fish, Vegetation, and Wildlife, discusses the methodologies and approaches to impact analysis and mitigation in the Auburn area used by the FWS and the Corps. The results of ongoing intraagency coordination on these impacts and mitigation between the draft and revised EIS/EIR are reflected in the above-mentioned chapter.

1828 The Corps should better direct indirect impacts and not leave it to the State and local authorities since this is really a federal project.

**RESPONSE:** The Selected Plan includes requirements to mitigate for direct project impacts. Any requirements to mitigate for impacts of induced future development will be the responsibility of the local agencies controlling development in the project area. Since the extent and timing of these indirect impacts will be determined in the context of the local land use planning process, it is appropriate that this process address mitigation issues as well. The local agencies are expected to provide assurances as to how they will exercise their planning authority to avoid or minimize indirect impacts. These assurances are discussed in Chapter 22 of the EIS/EIR. The State and local interests have provided their plans for mitigation of growth-inducing impacts as part of the mitigation plan.

2070 Development of plans to address indirect growth-inducing impacts must be resolved prior to submittal of final project documents. Deferral of this issue to resolution only prior to construction is not acceptable.

**RESPONSE:** The status of local assurances with respect to mitigating the indirect impacts of the project in Natomas is discussed in Chapters 7 and 22 of the EIS/EIR.

2161 Adequately discuss the cumulative effects of other reasonable foreseeable projects such as the South Sutter General Plan Amendment and the City of Folsom Sphere of Influence Study.

**RESPONSE:** Reasonably foreseeable general plan amendments affecting growth in the project area, including the South Sutter General Plan Amendment and the Sacramento County General Plan Update, are discussed in Chapter 18, Growth-Inducing Impacts, of the EIS/EIR.

2161 The proposed mitigation plan illustrated on page 8-41 shows mitigation lands in the South Sutter GPA plan area.

**RESPONSE:** The mitigation plan referred to above is a conceptual plan only proposed by the FWS. It shows what a mitigation plan for the Natomas area might look like. The actual mitigation plan for indirect impacts in Natomas is likely to be different.

1949 Corps gives no reasoned discussion of why 140,000 acres along the Cosumnes River is rejected. How does Cosumnes cost of \$17,242.550 compare to the cost of TSP? Why is need for mitigation plan unsupported and unexpected?

**RESPONSE:** Habitat values lost from construction and operation of a flood control facility in the upper American River area can be more appropriately mitigated in an area adjacent to the South Fork of the American River. The cost of this plan will be less than the \$17 million estimated for the Cosumnes River option. For a complete discussion of mitigation plans and costs, see Chapter 7, Fish, Vegetation, and Wildlife.

2182 In combination with the 150-year alternative, perhaps more environmentally favorable mitigation measures concerning conservation, changes in water systems management, and moving some water from agricultural to municipal uses could be applied to this alternative as well, in order to minimize these impacts.

**RESPONSE:** Mitigation measures such as the ones mentioned above include significant impacts themselves and would likely require environmental documentation and congressional authority. The 150-year alternative was considered and rejected due to significant environmental impacts and because it did not meet the nonfederal sponsor's project purpose.

2139 It is not clear whether any mitigation measures have been adopted in this report. However, monitoring periods are reported for only two measures. These extend for only three years, a period of time that is probably inadequate. Monitoring should continue for as long after restoration as necessary to assure success. Local standards usually require at least five years.

1850 Monitoring revegetated areas for three years is insufficient for determining mitigation success. A minimum of 5 to 10 years should be required and monitoring frequency should be determined in consultation with resources agencies.

**RESPONSE:** Text has been added to Chapter 7, Fish, Vegetation, and Wildlife, to reflect these comments. The implementation and monitoring times associated with mitigation are closely tied with the time the project is in the construction budget cycle (approx. 5 to 7 years) as funding after this time cannot be guaranteed. Therefore, monitoring will likely extend from 5 to 7 years.

2120 We cannot concur that mitigation needs will be fully met until the discrepancies between the Services' DCAR result and the DEIS are resolved.

2070 Identification of unresolved issue, page 1-10. It is not appropriate to include major issues such as wildlife and vegetation mitigation.

1958 Mitigation proposed for the TSP may be inadequate. Disagreements on impacts and mitigation must be resolved between the Corps and federal and State resource agencies prior to the final approval of a project alternative.

**RESPONSE:** Efforts have been ongoing to resolve differences between the agencies. The EIS/EIR has been amended to reflect the ongoing coordination, as can be seen in Chapter 7, Fish, Vegetation, and Wildlife, and Chapter 22, Mitigation, of the EIS/EIR.

2245 Please describe the monitoring program that would be implemented "to ensure that habitat restoration occurred as planned and that adequate habitat value was created". Please explain why the details of this monitoring program have not been fully developed at this time.

2245 The Reclamation Board is required to prepare a mitigation monitoring program pursuant to Public Resource Code Section

21081.6 prior to certification of the final EIR. When will the mitigation monitoring program be available for public review and comment?

2194 The environmental impacts of the project are underestimated. Even the inadequate mitigation described in the report will not be implemented and the mitigation will not be monitored. Please describe any planned mitigation enforcement procedures to insure that it will be performed and describe the mechanism for mitigating environmental effects if they are significantly greater than expected.

**RESPONSE:** The monitoring program is described in Chapter 22 of the EIS/EIR (Mitigation, Environmental Monitoring and Commitments).

2197 It is inadequate to state that environmental commitments to address indirect impacts will be developed at a later stage. Although it is stated that the indirect impacts mitigation will be similar to those for direct impacts, that seems unlikely from the discussion of the measures currently under consideration.

2137 It is probably inadequate for the Corps to leave mitigation up to local governments. It is undeniable that the TSP will allow a great deal of development to occur in the Natomas and lower American areas by any estimate. The involvement of federal agencies provides the opportunity to consolidate and organize mitigation measures in large, ecologically significant reserves rather than in isolated pockets, as often occurs in the region.

2070 Development of plans to address indirect growth-inducing impacts must be resolved prior to submittal of the final project document. Deferral of this issue to resolution only prior to construction, as stated on page XI-2, is not acceptable.

1954 Even if the Corps is not responsible for mitigating indirect impacts, they must identify measures which should be part of the project. Time required for monitoring is not known.

**RESPONSE:** As stated in the EIS/EIR, since the responsibility for indirect impacts rests with the development approval responsibilities of local governments, local governments also have the responsibility to determine and provide adequate mitigation at the time that development occurs. The Corps does not believe that it is necessary or appropriate to provide a detailed mitigation plan in the EIS/EIR. As noted above, the local agencies controlling land use in Natomas are expected to

provide assurances as to how they will exercise their authority to avoid or minimize indirect impacts. These assurances are discussed in Chapter 22, Mitigation, Environmental Monitoring and Commitments.

1851 Page 2-8 - The revised DEIS should indicate whether the recreational development of the proposed habitat is part of the mitigation package. If so, this may not be appropriate.

**RESPONSE:** Project components described in the Recreation Chapter of the EIS/EIR are separate from any proposed mitigation.

2136 The discussion of air quality impact mitigation on page 7-19 incorrectly suggests that measures to minimize construction-related air pollution will "avoid...impacts on air quality..." No measures are proposed to significantly lower the increases in hydrocarbon, NOX, SOX, projected to result from construction.

**RESPONSE:** The Air Quality Mitigation Section has been revised; refer to updated Chapter 12 of the EIS/EIR.

2173 Page 17-26, Franklin Boulevard. The bridge approaches may increase the depth of the floodplain upstream of Franklin Boulevard. This potential impact will need to be mitigated through a proper design or upstream detention reducing water surface elevations.

2173 Page 17-25, Raley Boulevard. The bridge approaches could raise the depth of the existing floodplain of Magpie Creek upstream of Raley Boulevard. This potential impact will need to be mitigated through proper design.

**RESPONSE:** These cumulative infrastructure projects are not part of the ARWI flood protection proposal. Any potential impacts generated by these projects would be addressed during environmental review for these separate projects.

1982 DEIS contains no mitigation for public safety impacts which could be created by a project.

**RESPONSE:** The Selected Plan would substantially reduce the existing risk of flooding. The effect of the project on public safety would thus be beneficial. Public safety risks associated

with operating a flood control dam at Auburn are described in Chapter 24 of the EIS/EIR (Consequences of Dam Failure).

2208 Please provide the documentation to support the statement on page 4-21 that mitigation for indirect impacts has been included in the City and County General Plans.

**RESPONSE:** Please refer to the listed plans contained in the EIS/EIR, Chapter 1.

2208 Please explain which sections of the Memorandum of Understanding are referenced in the last sentence on page 4-21.

**RESPONSE:** This sentence refers to all of the assurances set forth in the MOU contained in Chapter 22 of the EIS/EIR.

2081 Flooding will cause loss of vegetation and numerous landslides due to erosion. Will eroded areas be reforested? Who will be responsible? Is this included in the funding and maintenance of the dam?

**RESPONSE:** Erosion is expected to be minimal because of low velocities and constantly varying reservoir levels. The local sponsor would be responsible for revegetation of eroded areas. This responsibility will be included as part of operation and maintenance of the dam.

2216 The adequacy of mitigation measures cannot be determined because the information on potential project impacts is insufficient.

1948 You need further explanation of specific measures to mitigate adverse impacts. Mitigation measures are not identified for each significant impact. The Corps does not discuss any mitigation measures to be incorporated into the project. Mitigation of indirect impacts by the nonfederal sponsor is unacceptable.

**RESPONSE:** Please refer to the revised chapters and proposed mitigation measures contained in the EIS/EIR. Also, please refer to the response to Comments #2197, #2137 and #2070 above for a discussion of the rationale which supports the proposed indirect impact mitigation strategy.

1954 Even if the Corps is not responsible for mitigating indirect impacts, they must identify measures which should be part of the project. Time required for monitoring is not known.

**RESPONSE:** Summaries of indirect impact mitigation have been provided in the appropriate chapters of the revised EIS/EIR. Implementation of these measures would be the responsibility of the local agencies controlling land use in the project area.

2135 Mitigation measures are offered for water quality impacts due to construction in both the upper American and Natomas. But no measures are discussed for impacts identified on page 6-15 as resulting from normal operation of the project.

**RESPONSE:** Operational impacts resulting from temporary impoundment of high flows in the canyons of the North and Middle Forks of the American River and behind the flood control dam will be fully mitigated. This is due to the relative infrequency of flooding in the upper canyons and the low volume of materials which are likely to enter the stream in connection with a flood. In addition, increased retention times at Folsom Reservoir would allow greater settling time for any sediments which do enter the river.

2217 The public has a right to review possible mitigation plans at the draft stage. The mitigation proposed by the local sponsors is simply that they will follow State and federal laws. This is clearly not an adequate "plan."

**RESPONSE:** The principles embodied in the mitigation plan presented in Chapter 22 of the EIS/EIR are consistent with Corps policy and past projects.

2226 Without specific mitigation objectives that the mitigation plan can attain and without reasonably accurate impact predictions, it is not possible to estimate the cost and effort required to attain and sustain the mitigation objectives. Without the cost and time estimates, it is not possible for the public to resolve this aspect of the potential resource trade-offs.

**RESPONSE:** The document has been revised and now presents more specific impact analyses and mitigation measures. The plan for implementing and monitoring the effects of the selected



mitigation measures is described in Chapter 22 of the EIS/EIR (Mitigation, Environmental Monitoring and Commitments).

2070 Mitigation costs shown in Table VII-16 are understated. This includes land cost, development, and operation and maintenance.

**RESPONSE:** See revised Table VII-16, which now includes all of these costs.

2170 The Corps' land needs for a dry dam would normally establish a take line at 5 feet above the high water mark. The Corps could purchase only flowage easements, allowing private ownership and development above this flood pool. Under the dry dam alternative, the land in the canyon would be usable 98 percent of the time, as opposed to the multipurpose alternative. The project receives no credit for this environmental enhancement.

**RESPONSE:** It is assumed that with or without the flood control project, the lands in the canyon currently held by the federal government will continue in public ownership and will be managed for recreational use. The project will enhance this use.

2116 Page 8-43, paragraph 4 - This paragraph needs correction. Prior environmental documents have evaluated the north and south Natomas areas but not the north Sacramento County and south Sutter County portions of the Natomas area.

**RESPONSE:** The potential for growth and the impacts likely to result from growth in the south Sutter County and Sacramento County portions of Natomas are discussed in the Growth Inducement and Land Use Chapters of the EIS/EIR.

2093 How many miles of comparable size rivers once existed in the Sierras? How many miles have been destroyed already by various projects, such as Shasta, Oroville, New Melones, New Don Pedro, and other dams? How many miles are threatened by currently proposed projects? Can any further losses be mitigated? This is the heart of the issue. The remaining rivers are irreplaceable jewels.

**RESPONSE:** Such a study is beyond the scope of this EIS/EIR. Please refer to responses to comments under the Inundation

Impacts Section of this Appendix for a discussion of impacts on the canyons.

2216 One of the Corps' answers to indirect impact mitigation is to adopt the FWS alternative of the avoidance plan. How can the Corps accept this plan when a complete HEP analysis has not been performed on this plan yet?

**RESPONSE:** The FWS avoidance plan represents one possible approach to mitigating indirect impacts in Natomas. This plan reflects the HEP analysis performed by FWS based on the maximum growth scenario discussed in Chapter 4 of the EIS/EIR.

## **MITIGATION - LOWER AMERICAN**

2245 The DEIS states that provisions of the Memorandum of Understanding regarding local assurances will be spelled out in more detail during the public comment period (page 22-3). Please provide a status report on the process of developing more detailed provisions for the Memorandum.

2227 The vague and tentative mitigation proposals for the impacts to Swainson's hawk and giant garter snake are inadequate. They are too speculative to ensure protection of these species. The information needs to be produced now so that the public can gauge the true impacts of the project.

2109 Page 1-8, paragraph 5 - Deferring responsibility for indirect impacts to the local sponsors who in this case have no specific plans is not acceptable. A mitigation plan should be submitted and legal assurances given that it will be implemented. The FWS' recommendations should be followed or justification provided for not following them.

**RESPONSE:** The ARWI's local sponsors, in consultation with DFG, are currently developing specific mitigation plans for the State-listed species that would be impacted by the project (GGs and Swainson's hawk). The Corps is working with FWS to assure that federally listed species (valley elderberry longhorn beetle, winter-run chinook salmon) will not be jeopardized. All significant endangered species impacts will be mitigated to insignificant levels. Chapters 8 (Endangered Species) and 22 (Mitigation and Environmental Monitoring) have been revised to include the most current available information on the mitigation plans being developed. The revised version of the "Memorandum of Understanding Regarding Local Assurances" appears in its entirety in Chapter 22. A detailed description of the local sponsor's habitat conservation planning process is included in Appendix P.

2104 Page 8-62, paragraphs 5 and 6 - Recommended mitigation for fishery impacts includes increased minimum American River flows and a block of water reserved for fishery use. Were these mitigation actions included in the future impacts on Folsom Reservoir operations and CVP operations?

1970 On page 8-44, it states that the TSP "doesn't include any project features along the lower American, mitigation is therefore not needed." Yet, reop of Folsom will be necessary while TSP is constructed and those impacts are ignored. In fact, the nondam alternatives which depend on reop are dismissed by the Corps because of their destructive environmental impacts to fisheries.

1982 The DEIS/EIR stated that the TSP and 200-year alternative does not include any project features along the lower American River, mitigation is therefore not needed. Folsom reoperation impacts should be considered with these alternatives.

**RESPONSE:** As part of the Selected Plan, no changes would be made to the operation of Folsom Reservoir. Folsom Reservoir could, however, be reoperated temporarily as part of a separate project. The impacts associated with temporary reoperation are discussed in the EIS covering that project. Permanent reoperation is a component of ARWI project alternatives other than the Selected Plan. Increased American River flows and dedication of a block of water (60,000 ac-ft) to DFG were discussed as potential mitigation measures for fisheries damaged by permanent reoperation. However, the discussion of these measures notes that the Corps has no authority to implement these measures. The potential for temporary Folsom reoperation to be included as part of the project authorized by Congress is described in response to EPA comments, in Appendix B (Plan Formulation). Should an alternative other than the current Selected Plan ever become the selected plan, a supplemental EIS/EIR would be prepared in order to thoroughly document all project impacts and proposed mitigation. Impacts to Folsom Reservoir and the CVP, if they were anticipated, would be covered in that document.

2100 All six action alternatives adversely impact fish and/or wildlife resources and their habitats along the lower American River. Although mitigation for the loss of fish and/or wildlife and their habitats is addressed, there is no recognition that these impacts could affect the recreational use of the American River Parkway.

**RESPONSE:** The impacts of all project alternatives on recreational opportunities throughout the project area (including the lower American River) are discussed in Chapter 14 (Recreation). Mitigation for these impacts is also discussed in this Chapter.

1955 Preserves on the lower American River could be acquired and designated to flood occasionally. It would increase habitat and reduce wildlife impacts. It would create areas to handle floods and create open space. The possibility of biking and hiking trails in that area would remain.

**RESPONSE:** A full range of flood control alternatives was investigated as part of the ARWI. These are discussed in detail in the Feasibility Report. Flood control alternatives not

discussed in detail in the EIS/EIR were eliminated from further consideration because they could not deliver adequate flood protection at a low enough cost (including environmental cost) relative to the alternatives that are considered in the EIS/EIR. One 150-year plan includes acquisition of lands within the parkway and upgrading wildlife value on those lands to help mitigate for adverse impacts. Alternatives not including levee modification plans along the lower American River do not include mitigation at that location. An attempt has been made to establish mitigation areas as close to the location of impact as possible. See Chapters 7 (Fish, Vegetation, and Wildlife), 8 (Endangered Species), and 14 (Recreation).

## **MITIGATION - NATOMAS**

- 1105 The lands acquired for mitigation must be identified and made available for public comment before the final draft.
- 1186 The Corps hasn't done enough to mitigate the lower American and Natomas area in any of the alternatives.
- 46 Any action taken on the American River must include mitigation measures that cover wetlands, riparian areas, and fisheries.

**RESPONSE: Mitigation for the Selected Plan is discussed in Chapter 7, Fish, Vegetation, and Wildlife, Mitigation Section of the EIS/EIR.**

- 1194 The report states that the wildlife habitat lost in Natomas will be replaced by habitat in Yolo County. We think it should be in Natomas, in another location.

**RESPONSE: Mitigation for direct habitat loss will be in Natomas, not in Yolo County.**

- 1991 EIS should recognize benefits to waterfowl, giant garter snake, and Swainson's hawk in determining mitigation land needed. Collective acreage required may be smaller than 1,400 acres recommended.
- 1961 Friends of the River supports flood control measures that are compatible with preservation and protection of the American River including environmental mitigation for the flood control project that includes allocation of Folsom Reservoir and, if necessary, other CVP water for anadromous fish, preservation and management of wetlands and associated uplands, levee and channel improvement methods that avoid damage to the natural character of the river and Parkway, and permanent protection of the rivers and their canyons as the proposed American River National Recreation Area or as a wild and scenic river.
- 1949 13,900-acre wetland/upland complex in northern Natomas is phenomenal cost. However, at any cost, substantial loss of wetlands from growth-induced development must be assessed.
- 2136 The Corps proposes restoring 254 of the 333 acres of land between the existing levee and the levee to mitigate for the loss of 254 acres. But the impacts on page 4-13 are identified for about 261 acres. It is unclear what

"restoring" the acres refers to. If the acreage is impacted, than all 33 acres should be restored.

2119 Page 11-9, paragraph 1 - Managing lands with suitable agricultural crops that serve as forage, cover, or breeding habitat would be a prudent multiuse concept.

663 I am in favor of full flood control mitigation as long as it will not disturb the Natomas wetlands. Some great creatures live there.

240 I support the acquisition of the Natomas wetland areas to protect already endangered species as well as stabilizing down river fisheries.

689 I support the acquisition of the Natomas wetlands.

**RESPONSE:** Comments noted.

2251 Mitigation should consist of local improvements along the lower American, lower Dry and Arcade Creeks and the NEMDC. Mitigation such as planting denuded areas and creating ponds will provide very high habitat values per acre. As FWS studies and analyses demonstrate, mitigation for the loss of riparian areas frequently requires many more acres than the impact area in order to replace the habitat values.

**RESPONSE:** Local plantings along the NEMDC are included in the recreation plan discussed in the Recreation Chapter of the EIS/EIR and in the Recreation Appendix. Additional information regarding mitigation for the direct impacts of the Selected Plan in Natomas, including habitat enhancement, along the NEMDC can be found in Chapter 7, Fish, Vegetation, and Wildlife. This mitigation has been coordinated with the FWS.

2251 Tree plantings proposed to shade recreational bicycle and equestrian trails could be of species valuable to local wildlife. This option would combine some recreational benefit with some wildlife restoration or mitigation. Concur. We will ask for species suggestions from U. S. Fish and Wildlife Service and use these if recreation function will also be served.

**RESPONSE:** Tree plantings associated with the recreation plan in Natomas will likely be species such as willows, oaks and cottonwoods. These species are consistent with the surrounding habitat and provide habitat benefits to local species. Additional

information regarding the recreation plan can be found in Chapter 14, Recreation, of the EIS/EIR and Appendix H, Recreation.

2252 This section does not identify the development of a tangible mitigation program for indirect impacts.

2108 Legal assurances and a reasonable detailed plan need to be included for assuring mitigation plan implementation in the Natomas area.

2120 Deferring responsibility for indirect impacts to the local sponsors is not acceptable. A specific mitigation plan that fully offsets habitat losses should be included along with legal assurances that it will be implemented.

2120 The FWS disagrees with the MOU approach to mitigation for indirect impacts. FWS recommendations differ from those proposed by the local agencies. These issues should be resolved. FWS believes this will result in a piece-meal approach to mitigation.

2120 Page 22-6, paragraph 3 - The FWS disagrees with the project-by-project approach to impact assessment and mitigation planning. Planning future development along with protecting existing fish and wildlife habitat cannot be effectively done on a project-by-project basis.

**RESPONSE:** As stated in the EIS/EIR, since the responsibility for indirect impacts rests with the development approval responsibilities of local government, local government also has the responsibility to determine and provide adequate mitigation for the approved development. Assurances regarding the exercise of this local authority are discussed in Chapter 22 of the EIS/EIR.

1959 The mitigation discussion for the Swainson's hawk and giant garter snake is completely inadequate. No final plan is offered that is functionally and legally acceptable under CEQA.

1948 The proposal to plant trees as part of the Natomas recreational facility cannot mitigate for the overwhelming amount of riparian trees removed for levee improvements, particularly in view of Swainson's hawk requirements. Indirect impacts on Swainson's hawk must be mitigated.

**RESPONSE:** An acceptable mitigation plan for indirect impacts to endangered species in Natomas is being prepared by the local agencies in cooperation with DFG and FWS. Text in Chapter 8,



Endangered Species, has been changed to reflect the most current information regarding this plan.

2136 The FWS identified 424 acres lost to direct construction in Natomas, including 1 acre of jurisdictional wetland. Acquisition of land for mitigation is not discussed, as well. The proposal for a 3-year establishment period for restoration is unclear. Does the period include restoration and monitoring?

1948 Tree planting mitigation is inadequate as there is not a reporting or monitoring program. TSP proposal calls for the survival of riparian plantings on levees, which is absurd. The three-year establishment period is not adequate.

RESPONSE: The mitigation for the direct impacts of the Selected Plan in Natomas is presented in Chapter 7, Fish, Vegetation, and Wildlife. No plan exists for planting of trees on the levees themselves as this interferes with the levee maintenance programs. The initial establishment and monitoring times associated with mitigation are closely tied with the time the project is in the construction budget cycle (approx. 5 to 7 years) as funding after this time cannot be guaranteed. The nonfederal project sponsors will be responsible to maintain mitigation areas after their initial establishment as a requirement for federal participation in the project.

1948 Proposal to plant trees as part of Natomas recreation facilities cannot mitigate for the overwhelming amount of riparian trees removed for levee improvements. Particularly in view of Swainson's hawk requirement. Indirect impacts on Swainson's hawk must be mitigated.

RESPONSE: The tree plantings proposed in Natomas for the recreation portion of the Selected Plan are not mitigation for direct construction impacts associated with the levee improvements. The plantings are part of the recreation plan. Additionally, the impacts to riparian trees from the levee improvements total 1/2 an acre as described in Chapter 7, Fish, Vegetation, and Wildlife. Mitigation plans for endangered species such as the Swainson's hawk can be found in Chapter 8, Endangered Species.

2136 The FWS identified 424 acres lost to direct construction in Natomas, including one acre of jurisdictional wetland. Acquisition of land for mitigation is not discussed, as well. The proposal for a 3-year establishment period for restoration

is unclear. Does the period include restoration and monitoring?

2116 It is likely that the mitigation site in Natomas is not adequate. In addition, monitoring for plant survival and habitat optimization will require many years, not 3 years.

**RESPONSE:** Mitigation for the Selected Plan is included in Chapter 7, Fish, Vegetation, and Wildlife, Mitigation Section. The mitigation land area has been changed to consist of lands within Natomas near the Sutter/Sacramento County line. Text has been modified to clarify changes in mitigation site and the monitoring and establishment period.

2120 Page 22-5, paragraph 3 - Clarification is needed here. The FWS's HEP evaluation for the Natomas area was based on a much larger area than the City's local development plans. The Service's recommended mitigation plans may differ conceptually from those proposed by the local agencies.

**RESPONSE:** While land use projections may vary (see discussion in Chapter 4 of the EIS/EIR), there is no conceptual difference on the principles to be embodied in a mitigation plan, i.e., avoidance and compensation.

2 The area east of the east levee of Natomas is at risk to flooding. No right to flood has been acquired for this area. This long-standing oversight should be corrected before any additional federal funds are spent to make the problem worse.

**RESPONSE:** The area in question is subject to flooding due to a local stream course under existing conditions. The project would not directly affect this situation. Refer to Chapter VIII of the Main Report for a discussion of the hydrologic conditions of the area.

1959 The mitigation discussed for the Swainson's hawk and giant garter snake is completely inadequate. No final plan is offered and that is functionally and legally unacceptable and in violation of CEQA.

**RESPONSE:** Mitigation programs for State and federally listed species directly impacted by the project are included in the revised Chapter 8, Endangered Species, of the EIS/EIR.

2120 Page 22-5, paragraph 4 - The FWS disagrees with the reasonable assurances approach recommended to address future growth impacts. Within the 100-year period of analysis, it is reasonably foreseeable that all of the Natomas area will be urbanized. Unless adequate lands are set aside with ironclad piecemeal degradation will occur over time. South Natomas development is a good example.

**RESPONSE:** As discussed in Chapter 7, Fish, Vegetation, and Wildlife, mitigation is proposed for all project-generated direct impacts including firm habitat commitments. Mitigation of indirect impacts is a local responsibility to be carried out in accordance with the assurances discussed in Chapter 22 of the EIS/EIR.

1949 The development of a 13,900-acre wetland/upland complex in northern Natomas to mitigate for habitat losses. The cost is phenomenal. Nowhere in the DEIR does the Corps address the importance of mitigating for growth-induced impacts in the Natomas Basin, and yet they have to be assessed for feasibility before a mitigation plan can reasonably be arrived at.

439 Should development of any kind result from your project, full riparian mitigation must be a condition. It must include natural riparian ecosystem range enhancement and water quality improvements for fisheries.

**RESPONSE:** Mitigation for secondary impacts resulting from induced growth is addressed in Chapter 22, Mitigation, and Environmental Monitoring.

2198 What is the basis for the finding that the mitigation discussed on page 2-7 would offset all impacts for work in the Natomas Basin and the widening of the Fremont Weir. Has the Corps or FWS conducted a HEP to assess project impacts and anticipated habitat values of proposed mitigation?

**RESPONSE:** The Fremont Weir component has been eliminated from the project. A HEP has been conducted and serves as the basis for the finding that impacts would be mitigated to less than significant.

1080 Your failure analysis states that a failed Auburn Dam would cause the failure of a dike on Folsom Lake. Is there an evacuation plan for the Sacramento area as a mitigation item?

**RESPONSE:** Local jurisdictions have evacuation plans. Refer to Chapter II of the Main Report for a discussion of these plans.

2136 The Corps proposes restoring 254 of the 33 acres of land between the existing levee and the new levee to mitigate for the loss of 254 acres. But impacts on page 4-13 are identified for about 261 acres. It is unclear what "restoring" the acres refers to. If the acreage is impacted, then all 33 acres should be restored.

**RESPONSE:** The 254 acres referred to land to be acquired in connection with the proposed modification of the Fremont Weir. However, this measure is no longer a project component.

2120 The only way to ensure that all fish and wildlife values are preserved is to develop a comprehensive plan for all of the Natomas area that strategically locates fish and wildlife areas and integrates development so that existing fish and wildlife values are not diminished.

**RESPONSE:** Mitigation planning for fish and wildlife habitat is discussed in Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR.

## MITIGATION - UPPER AMERICAN

867 I support full flood control project mitigation.

**RESPONSE:** Comment noted.

- 2226 If landslides and slope failures occur with the present vegetation (which the report asserts will be unaffected by inundation), then is it not likely that any of the recommended revegetation activities using seedlings will stabilize the slopes?
- 2266 Revegetation will be a critical part of mitigation planning. However, the report fails to adequately consider or define a revegetation program for the upper river canyons impacted by slope loss and erosion problems. It is evident that mitigation information exists when it is heeded and ignored when it's troublesome.
- 2265 FWS points out that almost all soils in the area are of low fertility, according to a 1971 report. This means that mitigation will not be easy. The DEIS fails to address that issue in any substantive way.
- 2264 Does the canyon face severe erosion and slope failure if vegetation losses are more substantial than anticipated? If so, those additional impacts will mean costly mitigation and potential for unmitigable consequences. These problems are neglected or minimized in the DEIS. They should be addressed.
- 2136 Mitigation is calculated as the result of periodic inundation of the canyon. This does not include losses from another acknowledged impact, sloughing of soils and sedimentation. Also, no mitigation is discussed for acknowledged losses of "small mammals, reptiles, and other species" due to periodic inundation.
- 2012 Use of structural and biotechnical slope protection following a major flood may be infeasible in many areas of the canyon, due to lack of sufficient topsoil on steep slopes (not to mention the logistics of working on such steep slopes).
- 1467 As with New Melones, this dam would destroy an irreplaceable piece of California's wilderness, which could not be mitigated in any way, even if the Corps were to attempt such mitigation, which they will not attempt.
- 2147 Temporary inundation mitigation fails to discuss the impacts on wildlife. The Corps recognizes that there will be losses

to small mammals, reptiles, etc., but unless the Corps has a way to bring dead animals back to life, the mitigation plan should include pro-active steps to permanently protect the number and kind of animals that would die during flooding.

1889 Your mitigation mentions only vegetation.

1902 You intend to mitigate damage done to the region but are vague on exactly how this is to be done.

1895 It is environmentally destructive in the extreme without adequate mitigation.

1879 Where are you going to enhance 730 acres of mitigation with 1,500 acres?

1948 Inadequate mitigation proposal for bank sloughing due to inundation. Long-term monitoring program fails to meet CEQA requirements.

**RESPONSE:** The analysis of potential inundation impacts to the upper American River canyons has been revised and expanded (see Appendices M, Geotechnical Investigations, and Q, Inundation Impact Analysis). Based on new information concerning slope stability in the canyons, and the effects of inundation on vegetation and wildlife, a reasonable impact analysis has been completed, and an appropriate mitigation program has been developed. Mitigation will consist of the acquisition and management of off-site lands, as well as an on-site adaptive management program (including revegetation). The adaptive management strategies that will be used have been shown to be effective in areas similar to the upper American River canyons. In keeping with CEQA, the proposed mitigation plan will mitigate all foreseeable significant impacts to a nonsignificant level. The ongoing adaptive management plan will assure that any unforeseen impacts are also mitigated.

1966 The Corps finds the FWS conclusions vis-a-vis potential upstream damage unacceptable, at least partly because such an enormous mitigation cost to the local sponsors would surely jeopardize the project.

1966 The Corps hired a consultant who came up with a contrary opinion to that of FWS. The Corps is unwilling to use the conclusion because their consultant used different techniques, didn't do a HEP analysis, and didn't consider erosion or slippage to be a problem, even though it affirms the Corps position that there would be minimal damage to the canyon from inundation.

- 1991 Methodology/standards used by FWS to determine mitigation acreage is not explained in the report. Their conclusions are questionable. Also, there is no citation of authority for the Corps' 2 to 1 ratio for mitigation lands.
- 2136 The report proposes acquiring and managing 1,462 acres as compensation for the loss of 731 acres due to operation of the TSP and relocation of Highway 49. It is not stated what the current status is at the mitigation site. If any of the mitigation site is similar to the oak woodland/chaparral of the impact area, this would not constitute a complete mitigation.
- 2088 and 3 - There is considerable uncertainty as to the loss of natural habitat due to inundation. The Corps' estimated cumulative loss of 700 acres of river canyon and streamside habitat while FWS estimate is higher (3,866). DPR does not consider acquisition of 1,462 acres at Knickerbocker Flat to be adequate mitigation for either estimate since it is already providing excellent habitat. Mitigation should protect similar habitat nearby that is in danger of conversion through development. There are similar areas along the South Fork of the American River and the Cosumnes River.
- 2116 Page 8-45, paragraph 8 - Further discussion and support for this mitigation program is needed. There should be description of the existing scientific evidence (references).
- 2159 FWS determined that the canyon vegetation is of such quality that tens of thousands of acres for mitigation is required appears to lack merit.
- 2054 I do not know how you can equate mitigation in terms of land acreage to impacts to a water system.
- 2021 Recreation and environmental mitigation will fall far short of replacing lost habitat.
- 461 Full mitigation should include acquisition and permanent USFWS management of wetland replacement areas.
- 1879 How do you the mitigate the river canyon with flatlands?
- 1175 The FWS hasn't had time to adequately assess impacts so they estimate mitigation needs to be 78,000 to 120,000 acres. More study is needed and this is one reason why the EIS is inadequate.
- 1185 There should be a consensus among the Corps, Fish and Wildlife Service, and Fish and Game on mitigation and effects before a final decision is made.

2108 Resolution of mitigation disparities between the Corps and Service needs to be addressed for the Auburn area.

1991 No explanation of FWS standards for mitigation for 200-year alternative operating at full capacity.

**RESPONSE:** FWS employs the Habitat Evaluation Procedure (HEP) to determine mitigation acreages. HEP methods are systematic and well-defined, but they do rely to a large extent upon the judgment and discretion of the analyst. There is, therefore, room for disagreement among experts concerning the results of a particular HEP study. Additional studies undertaken by the State of California between the draft and final phase of this study are included in this FEIS/EIR. Continued interagency coordination has also been pursued in an attempt to resolve mitigation differences. FWS mitigation recommendations and the project mitigation plan are discussed in the FEIS/EIR (Chapter 7, Fish, Vegetation, and Wildlife). The Corps' mitigation plan is presented in Chapter 22 (Mitigation, Environmental Monitoring and Commitments). This plan is designed to insure that all habitat units (as determined by HEP) that could be lost due to project construction and operation will be regained through mitigation. The off-site mitigation lands to be acquired along the South Fork of the American River (the Knickerbocker site is no longer the preferred site) as part of the plan consist of a mixture of cover types. The site is described in Chapter 7. Much of that land would be developed if it were not acquired for mitigation. Corps policy directs that mitigation be located in close proximity to the impact area and be accomplished cost effectively and under the following ownership constraints in order of preference: project lands, existing public lands and private lands. Mitigation for the Selected Plan was chosen following these criteria. A more thorough analysis of inundation and slippage impacts is included in Appendices M (Geotechnical Investigations) and Q (Inundation Impact Analysis).

2147 In Chapter 8 it states mitigation for direct impacts from aggregate mining will be included in the final EIS/EIR. Why was this delayed? What are the mitigation costs? Will the Corps propose mitigation?

2138 No attempt is made to mitigate for losses to upper American River users due to the removal of gravel bars and construction. The omission is apparently because no local agency has expressed interest in sharing the cost of recreational development in the area. But again, recreational development as a project goal is not to be confused with mitigation for impacts. It is the responsibility of both lead agencies to see that adequate mitigation measures are investigated.



2197 Page 1-9 states that the project sponsors will restore the aggregate mining site to "preproject contours". Please explain what preproject contours means in this context.

1902 Especially troubling is the almost total lack of the plan to care for the sections of the Middle Fork where a large borrow area is proposed. You say you are taking 66.5 million cubic yards out and yet you promise to restore it to its original state.

1922 There is little stated plans for mitigation of the gravel extraction.

1860 The proposal by the Corps has the potential to result in detrimental impacts such as the proposed strip mining of gravel bars upstream without mitigation through a full reservoir to cover up the scars.

2138 No attempt is made to mitigate for losses to upper American River users due to the removal of gravel bars and construction. It is the responsibility of both lead agencies to see that adequate mitigation measures are investigated.

2147 In Chapter 8 it states mitigation for direct impacts from aggregate mining will be included in the final EIS/EIR. Why was this delayed? What are the mitigation costs? Will the Corps propose mitigation?

**RESPONSE:** A gravel source other than the bars along Middle Fork of the upper American River is now the preferred site for gravel extraction. The Old Cool Quarry above the Middle Fork is capable of supplying all needed gravel. Information on this site is provided in Chapters 2 and 7 of the EIS/EIR. Chapter 3 discusses borrow site alternatives, impacts and potential mitigation alternatives. Quarrying and dam construction will involve minimal impacts to recreation (see Chapter 14, Recreation).

1991 EIS should recognize benefits to waterfowl, giant garter snake, and Swainson's hawk in determining mitigation land needed. If you do so, collective acreage required may be smaller than the 1,400 acres recommended.

**RESPONSE:** Mitigation for impacts in the upper American River canyons will not include habitat for the giant garter snake, or the Swainson's hawk. No significant increases in waterfowl habitat will be realized. Therefore, no adjustments in the required acreage can be made.

- 2148 The Corps proposes a postflood remediation program to mitigate temporary inundation impacts. This is flawed thinking since it assumes money will be available in the future for such a program and that compliance can be forced after the dam is built. Who will pay for this work once the dam is complete? What action can the Corps take to force compliance?
- 2097 If periodic but unpredictable inundation is anticipated, and no project funds are devoted to its mitigation, the practical consequence will be an abandonment of the canyon as a recreational resource. The EIS/EIR must articulate more directly this impact.
- 2116 Page 8-46, paragraph 3 - The FWS remains convinced that off-site acquisition in a nearby river canyon is the only feasible means to fully mitigate these inundation impacts. Also, dependence on uncertain annual Corps operations and maintenance budgets to deal with major mitigation cost demands is not a reasonable risk.
- 2251 The discussion of postflood remediation conflicts with Army Corps of Engineers Planning Policy Guidelines. Are inundation impacts unlikely or uncertain? If this impact is unlikely, why are these backup mitigation measures developed?
- 2081 Flooding will cause loss of vegetation and numerous landslides due to erosion. Will eroded areas be reforested? Who will be responsible? Is this included in funding and maintenance of dam?

**RESPONSE:** The analysis of impacts attributable to operation of the flood control dam attempts to account for the uncertainties associated with these impacts. While there is some evidence to suggest that the existing vegetation in the inundation zone would not be severely damaged by periodic flooding, the analysis assumes that over 600 acres would be lost as a direct result of the physiological effects of inundation. The analysis further assumes that over 1,100 acres would be lost due to the effects of inundation-related sloughing along the canyon walls behind the dam. Despite the potential for regeneration in damaged areas, mitigation for the effects of the dam is based on a complete loss of 1,800 acres -- more than half of the vegetated area within the inundation zone.

Mitigation for this assumed loss would involve acquisition of over 3,000 acres along the South Fork of the American River. Based on a HEP analysis performed by the Corps, habitat values lost in the canyon area would be replaced along the South Fork by removing land from the path of development and by enhancing the habitat value of a portion of this land through plantings of the cover types assumed to be lost in the inundation zone. This mitigation effort would be

undertaken and monitored during the period following authorization of the project but prior to completion of the flood control dam.

In addition, the project includes adaptive management in the operation and maintenance plan for the flood control dam. Under this plan, ongoing efforts would be undertaken to revegetate damaged areas and to repair recreational roads and trails in the aftermath of a flood event. The cost of these efforts would be included as part of the ongoing operation and maintenance budget for the dam to be paid out of assessments levied upon the beneficiaries of the project in the Sacramento metropolitan area.

2135 In Chapter 4 the conversion of 322 acres for highway relocation and damsite foundation is identified as a "significant and unavoidable impact of the project." The reader is referred to Chapter 8 for mitigation plans, but the report avoids discussion of mitigation for dam construction because "the area around the damsite is considered highly disturbed."

**RESPONSE:** The erroneous cross-reference to Chapter 8 (which is Chapter 7 in the current draft of the EIS/EIR) has been deleted.

2119 Page 17-7, paragraph 4 - The last sentence should be corrected. The Knickerbocker area near Cool that is proposed as a mitigation area for the Selected Plan is also the proposed mitigation area for the multipurpose Auburn Dam project. Since mitigation areas within project lands are scarce, there would be an effect.

**RESPONSE:** The discussion of the effects of the flood control project on a possible future multipurpose project has been expanded considerably (see Chapter 17, Cumulative Impacts). The preferred site for off-site mitigation for impacts to the upper American River is now the South Fork of the American River rather than at the Knickerbocker site (see Chapter 22, Mitigation, and Environmental Monitoring).

2012 Do the sponsoring agencies plan to maintain nurseries or contract with existing ones to supply anywhere near the number of plants required to revegetate hundreds of acres after a major flood? Is the staff available to assess revegetation needs, implement and monitor this enormous restoration effort in a timely fashion? Explain the basis for believing this is a feasible strategy.

2012 and 2252 - This comment is a combination of questions on detailed information of the proposed postflood remediation mitigation plan. Comments included placement of biotechnical slope protection, source of plantings and personnel available to implement the plan and feasibility of effort.

**RESPONSE:** Private nurseries have been contacted in connection with mitigation planning for both the off- and on-site mitigation programs. Plant availability, manpower, and cost needs have all been assessed. Based on that analysis, the proposed mitigation plan has been deemed feasible. The details of this analysis appear in Chapters 7 (Fish, Vegetation, and Wildlife) and 22 (Mitigation and Environmental Monitoring, and Commitments). Details concerning the adaptive management program for the upper American River appear in Appendix Q (Inundation Impact Analysis).

## MULTIPURPOSE

790 I support a multipurpose dam.

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131 I support a multipurpose dam at Auburn.

1189 We support a multipurpose dam at Auburn.

136 I support a full-sized multipurpose Auburn Dam.

1877 We support a multipurpose dam.

1510 I vehemently oppose the dry dam. A multipurpose dam would assure us of flood control. Please listen to the voters.

1860 The City of Rocklin supports a multipurpose dam because it best meets the needs of the greatest number of people.

1883 We support a multipurpose dam because of all its benefits.

628 I am a Sierra Club member and I support a multipurpose dam at Auburn.

427 I support a real Auburn dam, one that provides both water and flood control.

636 I urge you to build a multipurpose dam.

18 I wish to express my strong desire to see the construction of a multipurpose dam at Auburn.

759 The majority of voters in El Dorado and Placer Counties support a multipurpose dam. I urge you to construct one without delay.

277 The members of the Sacramento Valley Marine Association are 100 percent in favor of a multipurpose dam.

1298 Build a multipurpose dam instead of a dry dam.

1177 Build it and put water behind it.

1512 Do not build a dry dam. A multipurpose dam would be much more useful.

- 1472 I am opposed to the dry dam and support the multipurpose dam.
- 1046 I favor a multipurpose dam over your plan. Do it right the first time.
- 1364 We support a multipurpose dam. Do it right the first time.
- 1874 We support the Corps as long as the dam they build is a multipurpose one.
- 1694 The City of Lathrop opposes your dry dam and supports a multipurpose dam for needed water.
- 1233 The vast majority of people want a multipurpose dam. Let's build it.
- 1887 I would recommend a 2.3 million acre/foot multipurpose dam with foundations for penstocks and that it be a stageable structure.
- 2071 We believe to build anything less than a multipurpose dam would foreclose the possibility of needed water supply in the future.
- 1881 The report has a flaw because the Corps did not consider a multipurpose dam.
- 1621 We would appreciate your support in obtaining the much needed all-purpose dam.
- 1868 The multipurpose dam should be included as an alternative.
- 1944 Failure to analyze a multipurpose alternative.
- 1661 Feasibility of the multipurpose dam should be compared with the remaining alternatives and the TSP must be accomplished prior to the release of the Final Feasibility Report.
- 2071 Do a supplementary water/power/storage/recreation analysis to confirm the multipurpose dam as the only logical solution.
- 19 A multipurpose dam should be studied before a final recommendation is submitted.
- 1166 I support a multipurpose dam, at the very least a stageable dam with some water retention and supply capability.
- 732 I support a multipurpose dam that would supply electricity, water and increased water recreation.

- 779 I would rather see you build a multipurpose dam instead of a dry dam. This area needs water, added recreation and hydropower.
- 1179 SMUD rates continually go up. Hydroelectric power is cheap and necessary.
- 1074 I support the multipurpose dam and its many benefits.
- 1485 I support the multipurpose dam. It will provide water, power, and recreation (even for handicapped people who can't enjoy the canyon now).
- 1257 I am in favor of a real wet water holding dam to be used for electricity, recreation and water conservation.
- 596 A multipurpose dam is far and away the most intelligent solution to the needs of the whole Sacramento Valley.
- 1397 A multipurpose dam could supply electricity, water recreation, and flood control.
- 894 A multipurpose dam is the truly intelligent plan for flood control, water source, power, and recreation. We are 100 percent opposed to a dry dam.
- 861 A multipurpose dam would eliminate water shortages during droughts, improve underground water levels, and provide recreation facilities that I bet even the environmentalists will use.
- 1554 A multipurpose dam would give us water supply, hydropower, and flood control. It would help to raise the surface of Folsom for recreation and improved flows for the lower American.
- 1865 A multipurpose dam would multiply the release from Folsom on an ongoing basis.
- 1722 A multipurpose dam would provide services that a dry dam would not and is, therefore, more feasible.
- 1179 It is imperative that the multipurpose dam be constructed at Auburn so the cyclic California rainfall can be leveled out.
- 1034 Let me add my voice to the 180,000 voters in Sacramento who oppose your big mud hole (dry dam). I support a multipurpose dam that will store clean water, provide recreation, generate power, preserve fishing and pay for itself.
- 1231 The multipurpose dam has many more positives than does a dry dam.

- 1560 The multipurpose dam would provide flood protection, water in drought time, and clean electricity.
- 1368 There's a market for water, a need for power, and you could solve the drought by building a multipurpose dam.
- 1203 This is a great opportunity to have badly needed electrical power and we need it for flood control as well.
- 1750 We could control the drought and floods, it could pay for itself through sales of electricity, and it would provide a new recreation area.
- 1534 We feel a multipurpose dam would be most feasible because it would generate services that a dry dam would not.
- 1748 We need a dam that stores water.
- 1188 We need flood protection but a multipurpose dam will pay for itself and provide jobs.
- 1693 We need water. There is no reason to reinvent the wheel with continued studies. We need a multipurpose dam.
- 1171 We support a "full-size" dam. One that combines water  
1170 storage, recreation, and hydroelectric power is the only desirable solution.
- 1874 We need flood control and hydropower. We also want to ensure spawning on the lower American River and to provide recreation. We can have all this with a multipurpose dam.
- 1866 The dry dam would not provide jobs like the multipurpose one would.
- 1867 The multipurpose dam produces water and power revenues, provides greater opportunity to improve the American River fisheries and enhance downstream water qualities.
- 1193 We would like to see a multipurpose project because we think it would maximize benefits.
- 1872 A multipurpose dam would cover any mining pits and enhance the environment for other uses.
- 1864 I intend to work diligently towards achieving a structure at Auburn that will serve multiple purposes and yield multiple benefits.
- 1869 The multipurpose dam would mitigate certain impacts on fish and wildlife resources by maintaining water temperature downstream from Nimbus Dam and by managing project lands.



- 600 I propose we do the job right this time and support a multipurpose dam, exactly as we the voters have already signified we want.
- 1956 We are opposed to the flood control only project but support a multipurpose project or staged construction of a M-P facility, whereby the first stage is a minimum pool flood control facility.
- 1679 No flood control-only dam should be built because it is basically useless, expensive, and would cost too much to convert later.
- 2094 I was convinced in 1965 and even more so now, that a multipurpose Auburn Dam and Reservoir is in the best interest of all Californians.
- 1229 I support the multipurpose dam and oppose the dry dam.
- 1927 Wouldn't it make more sense to build a multipurpose dam for the added water, increased power, and added recreation?
- 2087 There is a need for a multipurpose dam. If the anticipated growth is to occur in Natomas, there will be a need for more water and electricity. Hydroelectric power would be beneficial to air quality.
- 2072 We support the multipurpose dam since it will provide water storage as well as hydroelectric power.
- 1927 Wouldn't it make more sense to build a multipurpose dam for the added water, increased power and added recreation?
- 2175 Chapter VIII, and Table VIII-2 specifically, denotes that the American River watershed region has a significant surface water shortfall. The economics of this shortfall are not addressed in this investigation. Justification for eliminating the multipurpose option, based on the water resource shortfall denoted in this chapter, is not adequate and misguided.
- 2175 Elimination of the multipurpose option based on "...overcoming substantial opposition from numerous environmental interests..", is inconsistent with federal Principles and Guidelines.
- 2100 It is assumed that the multipurpose Auburn Dam, as previously authorized, will not be built. Such an assumption limits reasonable alternatives evaluated. In our opinion, that assumption is invalid.

1869 Prior reports and studies referenced in the Main Report demonstrate that a multipurpose dam maximizes NED benefits more than a flood control-only dam.

1887 A flood control-only dam is not in the best interests of the local communities or the State. The effect will be felt over a widespread area, including the Bay Area.

**RESPONSE:** Authorization for the Corps study is detailed in Chapter I, Introduction, Authority Section, in the Main Report. This authority focuses on evaluation of alternative means of achieving flood control in the American River watershed, assuming the multipurpose Auburn Dam is not constructed. The Corps has also been directed to evaluate incidental water and power benefits from a flood control facility in the basin and projected water demands in the watershed. This authority was interpreted as formulating a flood control project that neither advances nor impedes a multipurpose project at Auburn. At the request of Congress, the Bureau of Reclamation has recently undertaken a study aimed at reevaluating the potential to expand the flood control project. That effort will include appropriate social, economic, physical, and environmentally related analysis of potential expansion.

1889 The Energy Department has determined that if we could use all the energy conservation techniques, we could reduce our consumption by 30 percent. The need for additional energy isn't there. If it was, there would be a power company like PG&E or SMUD here to ask for this dam. But there isn't.

1916 Water for the Auburn Dam would be too expensive and SMUD or PG&E don't want to buy electric power from the dam.

1889 A multipurpose dam would only provide less than 1 percent of the water used in California. Water efficiency could give us that much.

1899 I don't see anyone lining up to buy this electric power that a multipurpose dam would provide because it's too expensive.

1918 If you build a multipurpose dam, it is going to flood that much more of the canyons.

1908 If you can't keep the reservoirs full upstream, how would you fill the Auburn Dam.

1899 The real beneficiaries of stored water are Central Valley farmers and valley cities like Sacramento, who don't have water meters.

1923 I oppose the multipurpose dam.

1915 A multipurpose dam is unnecessarily expensive and detrimental.

1915 The dam is unnecessary for water supply and power generation.

1883 Part of the additional cost of a M-P dam can be offset by not having to increase the height of the levees.

720 I am totally opposed to a multipurpose dam, which would only benefit the developers.

2034 A large dam would be too easily converted to a multipurpose dam.

2186 We do not believe that it is possible for the construction of a dam at Auburn to be neutral on the issue of a multipurpose dam. The presence of a dam in the upstream canyon will inevitably bias future decisions in favor of permanent storage.

2022 This project is too easily convertible to a full-service reservoir.

1411 If a dam has to be built, I'd like it to be one that produces a lake and not a hydropower dam that sucks up water and spits it out to make a mud hole.

**RESPONSE:** The only way of obtaining a high level of flood protection (greater than about 200-year) is through the construction of an additional upstream storage facility. This is discussed further in the main report in Chapter IV, Plan Formulation Process and Flood Control Measures, Potential Flood Control Measures Section. A later multipurpose project is not precluded by the flood control-only project. Conversely, however, the flood control-only project does not facilitate a multipurpose project which could only proceed if Congress authorizes it subsequent to analysis study, environmental study and documentation, and a commitment by a nonfederal sponsor to cost-sharing agreements to finance the cost of water supply, power and recreation elements of such a planned expansion.

1541 A multipurpose dam would create more recreational facilities.

1891 There would be more opportunity for recreation at a lake because of easier access.

1869 A multipurpose dam would provide recreation lands and facilities to accommodate 1.6 million visitor-days per year and enhance opportunities at Folsom.

**RESPONSE:** The Selected Plan includes a single-purpose system of improvements for flood control. Therefore, potential impacts

resulting from a multipurpose project on recreation are outside the scope of the feasibility study.

1227 I voted for a multipurpose dam in the November election. We need this dam because of our growing population, which will require water and power.

1292 I voted for a multipurpose dam. Let Congress know of our concerns about this waste of money.

1288 I voted for the big dam in the November elections and still support it.

1391 I want to know why the Corps chose a dry dam and is going against the code of the people, who want a multipurpose dam.

1043 I was one of the 180,000 who voted for Measure T last November. A multipurpose dam is what we need. For once I'd like to see our vote mean something.

1230 I voted for a multipurpose dam and request that you build it.

1619 I am opposed to the dry dam as I voted in November for a multipurpose dam.

1070 I support a multipurpose dam as voted for last November.

1302 A dry dam is not to the benefit of our country. It makes no  
1303 sense to build a dry dam. Give us what we voted for in November.

1297 The people voted for it and you should listen. Build a multipurpose dam.

1872 The public falsely believes that a dry dam has already been approved. Ninety percent of Sacramento voters voted for a multipurpose dam and they deserve to be heard.

1045 We definitely favor a multipurpose dam over your plan. We, along with the majority of the electorate, voted for one in the November election.

1304 We voted for a multipurpose dam and we want you to build one.

1295 We want the dam we voted for, not a dry dam.

1036 We, the people, as voted in the November 1990 election, want  
1035 a large, multipurpose dam in Auburn.

1858 I still support the multipurpose dam I voted for in November.  
1856 I want my opinion included when you make your report to  
1857 Congress.

1032 We want the multipurpose dam we voted for last November. No dry dam!

2086 The project is an alternative which meets federal and State requirements for an alternative which must be discussed in the Corps document, yet the Corps failed to analyze the multipurpose alternative.

2023 Measure T points to a local interest in developing of a project well beyond the scope of the TSP project.

**RESPONSE:** In the November 1990 election, Measure T asked voters if they supported taking all action necessary to finance a multipurpose dam on the North Fork of the American River. The Measure was passed. However, the Measure was not worded in such a way that obligated Sacramento County Supervisors to take specific action. The U. S. Bureau of Reclamation has recently initiated cost-shared studies which will examine the feasibility of a multipurpose project near Auburn. The authorization for the Corps' study is detailed in Chapter 1, Introduction, Authority Section, in the Main Report. This authority focuses on evaluation of alternative means of achieving flood control in the American River watershed.

1197 A feasibility study should be done by Sacramento Area water agencies and the Bureau of Reclamation for water and power components and a multipurpose dam should be completed ASAP.

2149 The hydropower discussion fails to give decision-makers information about the reasons that the multipurpose dam cannot find local sponsors for hydropower. To the casual reader hydropower appears to have merit, but the reality is that it does not.

**RESPONSE:** The U. S. Bureau of Reclamation is currently undertaking a water supply needs study that will include an evaluation of hydropower benefits from a multipurpose Auburn Dam.

1213 I support a multipurpose dam. Don't waste our money and leave us with a dry river after the torrent.

873 I urge you to construct a multipurpose dam. The dry dam you are advocating is a complete waste of taxpayer's money.

- 1645 I support a multipurpose dam. A dry one like yours would be a waste of the taxpayer's money.
- 631 A dry dam is a poor use of taxpayer's money. Instead use the money for a full-scale facility.
- 100 It would be a waste to build such an expensive dam and not utilize all aspects of a multipurpose dam. Fifty to a hundred years from now the ten million people who live in the Sacramento area will certainly be happy we had the foresight to build a multipurpose dam.
- 305 Only a multipurpose dam makes sense because it would provide: flood control, water, riparian water availability, power, recreation, and a beautiful lake.
- 35 Water supply needs; Recreation - lower American: The real solution to flood control in Sacramento is to provide a multipurpose dam at Auburn that will yield domestic and agricultural water supply needs, hydroelectric power and control a more usable lake level at Folsom for recreation.
- 1725 A multipurpose dam would better represent the taxpayer's money than a dry dam.
- 1296 Our taxes should go towards a multipurpose dam.
- 1499 The dry dam would be more expensive because of its limited benefit.
- 1661 Flood control only-dam makes completion of a multipurpose dam at the same site very difficult. If flood control only is constructed, a great increase in federal and local dollars over that will be needed to complete the multipurpose dam initially. Much of the money for flood control only is wasted.
- 1866 The dry dam cannot pay for itself of provide recreation.
- 731 A dry dam is a waste of money. People have repeatedly made it clear that they want a full-service dam and must have it for future growth.

**RESPONSE:** See the response to multipurpose comment above with respect to support for a multipurpose dam. Although a flood control project would not generate vendable outputs (i.e., water supply and/or hydropower), it is highly cost effective. Flood damage without a project is estimated at \$190,000 million on an average annual basis. Reductions in these damages due to a flood control project would exceed project costs by about three to one. Refer to Appendix B, Plan Formulation, for a full discussion of the multipurpose alternative.

957 I feel the money is there, so let's do the job right the first time and build a multipurpose Auburn Dam now.

1595 I support a multipurpose dam that would pay for itself.

1526 If it is necessary to create a barrier for flood control, I believe that the multipurpose dam is the most cost efficient.

1540 A multipurpose dam will pay for itself through water storage, power generation, and recreation facilities.

2269 A dry dam produces no revenue while a multipurpose dam produces power and water revenues.

1423 We can save water and electrical power which makes monetary and economical sense over the long haul.

1235 We want our money to go towards a multipurpose dam. We oppose the dry dam in face of the obvious need for water.

1883 Part of the additional cost of a multipurpose dam can be offset by not having to increase the height of the levees.

1201 With the money shortages in all government agencies, the multipurpose dam is the only practical answer.

1867 A multipurpose dam could be funded by the counties of Placer, El Dorado, San Joaquin, water agencies and districts in those counties.

1887 A multipurpose dam could supply flood control just as fast as a dry dam and it would pay for itself.

2107 In addition to mobilization, demobilization, and preparatory costs (over \$2 million with contingencies for the flood control dam as indicated in Appendix N (Chapter 4), structural changes to the flood control dam will be required, the outlet works will have to be replaced, and other changes will be necessary in order to meet design requirements for the multipurpose project.

**RESPONSE:** Please refer to the responses to multipurpose comments above. Funding for essentially all costs allocated to nonflood control elements of a multipurpose project would need to be paid during the construction period by nonfederal interests. Bonds have been identified by water and power development interests as the likely funding source for the nonfederal share of a multipurpose project. The Selected Plan does not provide for multipurpose benefits. The Selected Plan has been formulated, designed, and selected, so as to neither advance nor preclude future options for

multipurpose uses in the American River canyon facility. Please refer to Appendix B for a full discussion of the multipurpose alternative.

1505 I support a full service dam that could supply cheap power, more water, and recreational opportunities. I understand financial difficulties and would like to see the proposed dam expanded at a later time.

1871 Your TSP must not foreclose the future expansion of the dam for water conservation and power purposes.

1192 We think the dry dam is the first stage of a multipurpose dam and we urge you to get on with it ASAP.

1881 Your plan must always provide for the possibility of expansion to a full service dam.

38 I am 100 percent in favor of the proposal to build an extension dam at Auburn. In fact, I support a multipurpose dam - not just a "stop-gap".

1523 I am opposed to the later threat of the dam becoming a multipurpose dam.

1962 The dam must not be able to be converted to a multipurpose dam.

2175 Qualified nonfederal cost-sharing sponsors for the power and water portion of a multipurpose option have been available for some time. Both the American River Authority and Sacramento Metropolitan Water Authority have offered funding plans to qualify as nonfederal cost-sharing sponsors on the multipurpose option.

2100 The expandable dam concept needs more evaluation on the potential and cost to complete the analysis.

2087 There is a need for a multipurpose dam. If the anticipated growth is to occur in Natomas, there will be a need for more water and electricity. Hydroelectric power would be beneficial to air quality.

2086 The Corps states that "once flood control structures are in place, it is costly--and sometimes physically impossible--to modify them to provide a greater level of protection." We are concerned that the flood control-only plan has been formulated to impeded or preclude development of a multipurpose facility at the Auburn site.



- 2095 I am disappointed to find your plans for a flood control dam at Auburn do not include within them a provision for an expandable, multipurpose dam.
- 2144 All options for expanding the final selected project should be kept open, so that future generations and political leaders have the option to develop. Any project authorized should have the ability to be expanded. This was not addressed in the Main Report.
- 2175 The economics of the multipurpose option are not adequately addressed. Benefits to be derived from the sale of power and water, which could be used to offset the cost of construction and annual maintenance costs, are not addressed, or even considered, in the rationale for elimination of the multipurpose option.
- 2106 Page DEIS 17-7, paragraph 4 - While expansion is not precluded, a major impact of the TSP on a future multipurpose project is overlooked. Two-stage development, in which a flood control dam is first constructed followed by expansion to a multipurpose dam will cost more to construct than if a single-stage multipurpose dam is built.
- 2189 Please describe how the shape of the proposed dam was arrived at. Is the shape (i.e., face, abutments) that is proposed the same as the one earlier described by the Corps as the one specifically designed to make the dam more easily expandable?
- 2107 What will the estimated construction cost for a future multipurpose dam as an impact resulting from construction of a flood control dam at the Auburn site? This could have an adverse effect on the construction cost and economic feasibility of a multipurpose project.
- 2087 When the structure is upgraded to a multipurpose dam, will the junction of the old and new reinforced concrete be able to accommodate the stress equally as well as if the multipurpose dam had been constructed in one project? Will it be safe?
- 2086 The project is an alternative which meets federal and State requirements for an alternative which must be discussed in the Corps' document, yet the Corps failed to analyze the multipurpose alternative.
- 2149 The hydropower discussion fails to give decision-makers information about the reasons that the multipurpose dam cannot find local sponsors for hydropower. To the casual reader hydropower appears to have merit, but the reality is that it does not.

2175 Appendices J-12 and M-6 would give the indication that expandability was given some detailed consideration, but no specific evidence was denoted. Utilizing the proposed method of construction for the TSP and extrapolating the "potential for expandability" is questionable.

RESPONSE: The design for the proposed flood detention dam has been prepared so as to not preclude any future expansion of the structure for other purposes. Such factors as strength of materials have been considered in the design so as not to preclude future expansion. The Selected Plan does not propose any policy changes which would preclude a future expansion for multiple purposes. Several flood detention dam projects with features purposely included to more easily allow future expansion to a multipurpose project were evaluated in the feasibility study. All features not required for the flood control purpose would need to be funded by a nonfederal entity. After contacting all potential nonfederal sponsors for these features, none of these agencies indicated a willingness to make a firm commitment to pay for these necessary expandability features. Consequently, a flood detention dam project including features for later expansion was deleted from further evaluation.

1301 A dry dam is not to the benefit of our country.

1697 No flood control only dam should be built because it is basically useless, expensive, and would cost too much to convert later.

1892 The dry dam is too easily converted to a multipurpose dam.

1911 The flood control dam could easily be turned into a multipurpose dam.

1866 The dry dam would make it impossible to ever get an environmentally sound multipurpose structure that enhances the lower area with added water, electricity, recreation, and flood control.

1917 What the multipurpose supporters will get is a big bathtub ring mudhole in the canyon because it will fluctuate 100 to 300 feet, making water-based recreation nearly impossible.

2121 We are opposed to the flood control only project but support a multipurpose project or staged construction of a multipurpose facility whereby the first stage was a minimum pool flood control facility.

1513 Do not build a dry dam. A multipurpose dam is needed because of all the growth.

306 Sacramento's growing population needs water, electricity, and flood control.

1542 Sacramento is one of the fastest growing cities in the United States and, therefore, needs the water and recreational facilities.

**RESPONSE:** See response to multipurpose comments above. Water needs studies by the State of California (see Chapter VIII-I in Main Report) indicate that water shortages will not occur until the year 2020 in El Dorado and Sacramento Counties, although water conservation measures may continue to be effective to extend the existing supply.

1658 The multipurpose dam is the logical alternative and should be included as such. Rationale that indirect impacts are "too difficult" to assess is not acceptable. Note that the report attempts to identify indirect impacts of conversion of 48,000 acres to urban use. Obviously it is illogical for you to claim that you cannot assess indirect impacts for the multipurpose dam.

2134 No attempt is made to address indirect impacts of a full 2.3 million acre-foot reservoir, on the grounds that such an analysis would be "speculative". This argument is unacceptable. The Auburn dam has been studied in depth for nearly thirty years.

**RESPONSE:** Indirect impacts resulting from a multipurpose project would not only occur in the construction area in El Dorado and Placer Counties but in the lower river systems, water supply and hydropower service areas extending to many other areas of the State. Evaluation of these impacts are beyond the authorized scope of the American River Watershed Investigation.

1944 No nonfederal sponsor for multipurpose dam is not true - American River Authority offered in September 1988. A water supply contract is desired. El Dorado Water Authority supplied the Corps with letters of intent to that effect.

2162 Your conclusion that the multipurpose dam lacks a local sponsor is incorrect. The American River Authority and the Sacramento Metro Water Authority offered funding plans for water and power components of a multipurpose dam.

1869 To say that there was no local sponsor for a multipurpose dam is untrue. In September 1988 American River Authority offered to finance the water and power portions of a multipurpose

project and remain willing to participate in financing the multipurpose project.

1577 I support a multipurpose dam. It will help our water needs. The Auburn Dam Council, County of San Joaquin, and the Sacramento Area Water Authority have agreed to support a bond issue to pay it.

**RESPONSE:** Additional discussions have been added to the Main Report, Chapter VIII, Special Topics - Water Resource Opportunities - Multipurpose Auburn Dam, providing a basis that the flood control dam neither advances nor precludes development of a multipurpose dam. It is our understanding that a nonfederal sponsor could not be secured that has financial capability which is satisfactory to the United States to assure that the monies required to meet cost-sharing requirements, which is in excess of \$1 billion, will be available to fund the construction of a multipurpose project.

1659 Statement that Congressional authorization precludes studying of multipurpose dam is misleading. In fact, it only indicates authorized BOR Auburn Dam may not be built. It doesn't preclude study of a multipurpose dam. In fact, it should be studied to comply with the principles and guidelines.

1659 Statements alluding that no sponsors for water supply and power generation is misleading. Voters in Sacramento County voted for a multipurpose facility at Auburn. Placer, El Dorado, and San Joaquin also support a multipurpose dam. You cannot compare the TSP and multipurpose plans since the multipurpose dam is not studied. If TSP does not maximize NED benefits, it is dishonest to represent it as such.

1944 Appendix D and the Main Report fail to adequately analyze a multipurpose project.

**RESPONSE:** Study authorization for the Corps' studies in the FY 1988 Continuing Appropriations Act contained specific direction to assess a primarily peak-flow flood control facility on the North Fork of the American River. This authorization, along with the fact that the Auburn Project was (and is) a Congressional authorized project, was the reason that the scope of study was limited to flood control. The authority did, however, provide leeway to consider incidental water supply, water supply, and recreation development, primarily with respect to operations of Folsom Reservoir. Conceptual alternatives were developed including those other purposes. They are included in Chapter VIII-1. A description of the multipurpose Auburn project is also included in the decision. Studies are currently underway by the U. S. Bureau of Reclamation to determine the feasibility of a multipurpose

project. Authorization for the feasibility study is included in the Main Report, Chapter I, Introduction, Authority Section.

1661 Flood control-only dam makes completion of a M-P dam at the same site very difficult. If flood control only is constructed, a great increase in federal and local dollars over that needed to complete the M-P initially. Much of the money for flood control only is wasted.

1870 We recommend an independent review of the TSP by the Bureau of Reclamation prior to certifying the EIS/EIR to determine the ability to modify the TSP for multipurpose use.

**RESPONSE:** Comment noted.

1944 The flood control-only dam cannot be modified as is and is thereby undesirable.

**RESPONSE:** Elements of the Selected Plan in the Auburn area would be constructed to the extent possible, so that they neither preclude nor advance the construction of a multipurpose facility. The Selected Plan project could be incorporated into a multipurpose plan project without major costly changes to the flood control-only dam.

1969 Study briefly includes an analysis of the effects of expansion to multipurpose but is inadequate.

**RESPONSE:** A brief description of a multipurpose project at Auburn is included in Chapter VIII-II and in Appendix B, Plan Formulation. A description of cumulative impacts associated with the potential expansion of a flood detention dam to multipurpose uses is included in the EIS/EIR, Cumulative Impacts Chapter.

1969 Neither the benefits nor the costs of a multipurpose structure was adequately addressed by the Bureau or Corps.

1774 If a full-service dam was built, how much would the water level fluctuate seasonally to service all the needs from Folsom on down?

2149 The Corps' discussion of the multipurpose aspects fails to provide a balanced view of the potentials resulting from a multipurpose dam. The report should provide a balanced view

in order to inform decision-makers and the public about the negative aspects as well as the positive.

**RESPONSE:** Please refer to the previous comments and responses on three previous pages regarding a multipurpose project. A full evaluation of benefits, costs, and impacts of a multipurpose project is beyond the scope of the Corps' feasibility study.

2082 Which public and private entities have expressed interest in multipurpose dam and what are their financial commitments?

**RESPONSE:** The American River Authority, San Joaquin County, the City and County of Sacramento, and the Sacramento Area Water Authority are cost-sharing sponsors with the Bureau of Reclamation in its feasibility study of a multipurpose dam. This estimated cost of the Bureau's feasibility study is about \$4 million, currently being cost-shared by the Bureau of Reclamation and the study participants.

2082 Is \$700 million still the cost-share requirement (for a multipurpose project)?

**RESPONSE:** Potential cost sharing for the multipurpose Auburn project based on existing USBR cost estimates updated to October 1990 cost basis is included in Appendix B. On the basis of that estimate, the share at costs would be about \$1 billion. Again, this is based on 1990 price levels. Costs would probably be greater at the time of construction due to inflation.

2078 If a multipurpose dam is built at Auburn, will the USBR maintain existing 400,000 ac-ft space in Folsom? Can Sacramento be assured of this in writing?

**RESPONSE:** The U. S. Bureau of Reclamation is conducting further studies of a multipurpose dam at Auburn. It is likely they would consider an alternative flood control operation scenario for such a project in combination with alternative scenarios for other purposes (i.e., recreation purpose can be enhanced if there is more conservation storage provided at Folsom than at present).

2077 Are there currently plans by federal government to convert the proposed Auburn Dam to multipurpose dam?

**RESPONSE:** Please refer to previous comment responses regarding studies by the U. S. Bureau of Reclamation. There are no known plans at this time to expand features of the Selected Plan for multipurpose uses, although the referenced studies may result in such a recommendation.

2077 How much has been spent on these multipurpose plans? Who pays?

**RESPONSE:** Numerous studies regarding a multipurpose project at Auburn have been conducted over the years by federal and local interests. No reliable estimates of study costs to date are readily available.

2077 Do present plans allow for easy conversion to multipurpose dam (i.e., why are gates the size, shape, and position they are in)?

**RESPONSE:** Conceptual alternatives including specific features for the potential future expansion of a flood detention dam for other purposes are included in the Main Report and Appendix B. These concepts were deleted because a nonfederal sponsor was not secured to pay the additional nonflood control cost. The gates included on the outlet works are for system safety only. They were sized based on required elevations at the outlet works for flood control. Conversion of the flood control dam to a multipurpose project would require addition of outlet works and, if applicable, power-generating facilities.

2077 What assurances does Sacramento have that Auburn Dam will not be converted into a multipurpose dam and that the dam will not be further elevated? Are these in writing?

**RESPONSE:** It is likely that any modification of the purpose of the flood control project or structural features of the project would require additional environmental evaluation and Congressional authorization.

2077 If the dam is left at the proposed height and then converted to a multipurpose dam, what effect on 400-year flood protection for Sacramento?

2076 When dam is converted to multipurpose under BOR management, will Sacramento lose its 400-year flood protection and will

Sacramento and California be entitled to additional water and hydropower rights? If so, how much and is this guaranteed in writing?

RESPONSE: The flood detention dam element of the Selected Plan could not be converted to other uses without significant structural, institutional, and environmental modification and an authorization by Congress. Should this occur, Congress would probably provide that Sacramento could retain the initially selected level of flood protection. The report used by Congress and the law enacted by Congress for any such future multipurpose addition would provide for this in writing.

2083 What government branch would be responsible for reauthorization of a multipurpose dam? Would this be done before or after completion of the proposed project?

RESPONSE: The U. S. Congress would need to authorize or reauthorize any project requiring expenditures of federal funds. Reauthorization of a multipurpose project at Auburn could hypothetically occur whenever all appropriate technical and environmental documentation is made available to Congress for action.

2034 A large dam would be too easily converted to a multipurpose dam.

2144 All options for expanding the final selected project should be kept open, so that future generations and political leaders have the option to develop. Any project authorized should have the ability to be expanded. This was not the addressed in the Main Report.

RESPONSE: The process of converting the flood control dam into a multipurpose dam is described in Chapter 17 (Cumulative Impacts). Such a conversion would require (a) physical modifications to the dam, (b) complete environmental review, (c) Congressional authorization, (d) revisions to the federal and State permits issued in connection with the flood control dam, (e) the identification of nonfederal cost-sharing partners, and (f) the acquisition of additional lands. Since environmental review, identification of nonfederal cost-sharing partners, and Congressional reauthorization would be required even without the proposed flood control dam, implementation of the Selected Plan would not impose any new procedural requirements on the multipurpose project, or avoid any requirements which would otherwise apply.



2086 The Corps states that "once flood control is provided", mitigation of the indirect impacts arising from the project will be identified and provided by the local governments having land use authority for the Natomas and lower American River areas. CEQA is violated when means for mitigation are not described in an EIR adopted by the lead agency.

**RESPONSE:** The indirect impacts of the ARWI are more thoroughly described in appropriate chapters of this final EIS/EIR. In addition, the MOU addressing mitigation for secondary impacts is presented in Chapter 22. Chapter 18 (Growth-Inducing Impacts) contains an overview of all indirect impacts. Mitigation plans are also more completely developed (see Chapter 7, Fish, Vegetation, and Wildlife; Chapter 22, Mitigation, Environmental Monitoring and Commitments; and Chapter 8, Endangered Species).

## NATIONAL RECREATION AREA (NRA)

91	23	130	126	55	129	71	87	146
151	69	68	104	351	184	219	234	233
221	270	222	220	223	206	253	269	218
236	217	216	235	436	447	570	448	463
557	754	689	675	694	624	667	718	579
623	589	785	791	43	42	139	156	77
183	81	166	110	58	62	49	168	52
93	175	167	357	367	398	401	368	362
402	188	284	279	271	261	352	420	415
229	228	225	214	190	231	353	331	256
345	325	376	597	594	593	429	460	529
511	534	537	526	527	437	776	757	632
755	717	752	637	723	215	288	179	240
246	90	274	48	75	273	64	47	275
604	521	520	591	439	389	622	574	333
369	336	782	633	760	684	706	668	36
159	63	124	238	250	452	409	487	408
767	276	324	66	354	810	942	807	965
809	843	925	883	881	886	885	1019	1084
1049	1042	1085	1083	1055	1057	1134	1291	1293
1280	1294	1165	1167	1321	1500	1501	1322	1306
1315	1299	1320	1465	1335	1451	1461	1450	1330
1341	1449	1506	1654	1653	1503	1651	1620	1547
1627	1578	1552	1525	1581	1615	1721	1730	1746
1919	1893	853	852	836	849	830	841	821
808	975	871	893	946	867	622	953	1037
1044	1038	1133	1053	1052	1031	988	1135	1039
993	1090	1091	1289	1272	1256	1328	1365	1324
1623	1446	1901	1418	1440	1439	1422	1551	1545
1579	1471	1467	1546	1417	1492	1401	1744	1757
1747	1724	1677	1778	1761	1678	1769	1922	1909
961	970	1136	971	842	923	1132	955	1048
958	959	1137	1089	972	1232	1435	1163	1586
1790	1667	1650	1509	1557	1741	1502	1575	1787
1699	1771	1204	1204	889	912	909	1126	1028
948	1120	1504	1421	1863	1758	1759	1675	1588
1624	1916	1900	1913					

Common Comment 311. I support the establishment of a National Recreation Area for the American River.

The 327 commentators above all stated their support for the establishment of a National Recreation Area for the American River canyon.

**RESPONSE:** The Selected Plan is intended to neither promote nor impede uses at the project area for other purposes. This includes establishment of a NRA in the American River canyon. See Chapter

VIII of the Main Report and Chapter 14 of the EIS. Land use questions are discussed in Chapter 4 of the EIS/EIR and Appendix E.

662 This dam threatens the proposed National Recreation Area and  
247 even temporary flooding could cause great environmental  
1901 damage.

RESPONSE: See response to Common Comment #11. Chapter 7 of the EIS/EIR and Appendices P and Q contain detailed descriptions of the project impacts on the natural environment.

1210 The NRA study identified this canyon as worthy of inclusion in the NRA system. The DEIS/EIR must provide information on what natural river canyons remain in California. Only then can decision-makers know if they are destroying unique and irreplaceable resources.

RESPONSE: The Main Report and EIS/EIR recognize reconnaissance scope studies by U. S. Bureau of Land Management regarding the proposed inclusion of sections of the American River canyon as a National Recreation Area. As discussed in Chapter 4 of the EIS/EIR, the features of the Selected Plan will not prevent its use as part of a NRA which may be approved by Congress.

449 I oppose restrictions to the Corps' plan regarding  
874 flexibility. Therefore, I oppose the establishment of a  
1181 National Recreation Area at Auburn.  
1867

RESPONSE: Comments noted.

1195 There is no point in creating an NRA because the land behind the dam will remain under federal control even without that designation.

1115 A NRA should not be a deterrent to future expansion of a flood control dam so public lands needed for the dam should be in some other form of public ownership.

1974 The nationally significant values which make the upper American River eligible for NRA status will be harmed if a flood control only dam is built at Auburn.

1961 We support permanent protection of the rivers and their  
canyons as the proposed NRA as a wild and scenic river.

**RESPONSE:** Comments noted.

## NATOMAS GROWTH ISSUE

- 1962 Floodplain management policies that preclude floodplain development are needed. Not the kind that become a justification for further flood control projects. Sacramento should recognize that the proposed flood control project would reduce the frequency of flooding but not the severity of a flood.
- 1112 I am concerned about developing Natomas because it is in a 20-foot hole. Even with 400-year protection, eventually lives will be lost in a flood.
- 26 Are there any ordinances preventing or limiting building in the 100-year floodplain?
- 1900 Sacramento wants 400-year protection so they can build in the floodplain while someone else foots the bill.
- 1594 Sensible restriction of development in the floodplain is needed.
- 1097 Taxpayers are being asked to subsidize development in north Natomas, in particular.
- 1776 Building should not be allowed in the floodplain.
- 1528 Flood zones that are not built upon should be rezoned or not  
1527 insured by the government. Areas already built upon should  
1531 have levees reinforced.  
1530  
1529
- 61 Please reconsider your plan and the future of an already overdeveloped area.
- 62 Flood control should be accomplished by downstream land use controls and other environmentally sensitive measures.
- 587 Lands in the high flood-risk areas should not be built upon.
- 49 New development should be excluded from the deepest portion of the floodplain.
- 690 The American River floodplain should not be developed.
- 112 The dam would enable additional development in the area of the American River and the area is already overdeveloped.
- 114 The floodplain should remain a floodplain and not a series of building sites for new development.

- 1552 There should be a cessation of development in the floodplain.
- 1770 There should be no new development in the floodplain.
- 1885 Uncontrolled development is paramount to destruction.
- 1557 We need to change the zoning in Sacramento. That should solve some of the flood problem.
- 1207 We should protect existing development, not promote development in a known floodplain and have growth policies that encourage development on higher ground.
- 470 Who needs more development, certainly not California.
- 1421 I believe that residents should live and build in areas not subject to flood risk.
- 1666 I oppose new development in the deepest portion of the floodplain. It should be used to protect wildlife and endangered species.
- 1915 It would make sense to limit further development in the floodplain.
- 417 Keeping development out of the floodplain just makes common sense.
- 410 Limit growth in floodplain areas. Growth can become a burden on already overburdened taxpayers and cause the quality of our lives to decline.
- 1187 No matter how much flood control you provide for Natomas, you are going to have flooding and deaths there. So it is really farcical to build in that area.
- 134 The dam will encourage overdevelopment in places where it is inappropriate.
- 330 There must be a prohibition on new construction in the most dangerous areas of the American Sacramento River floodplains.
- 1165 This is an opportunity to prevent new development in the floodplain.
- 464 Those groups promoting the Auburn Dam are interested in economic profits from construction and development, not flood control.
- 1652 We should control development along the river and in the floodplain.

- 1212 Your proposal puts the responsibility for the long-term impacts with other individuals or agencies and thereby clouds the real costs of the TSP, as well as the real costs of the other alternatives presented.
- 768 Development in the floodplain is a greedy scam and should stop. A dam should not be constructed to protect people who buy a home in the deepest portion of the floodplain.
- 1522 Don't help developers make a huge profit at taxpayer's expense.
- 366 New development must not be located in the deepest portions of the floodplain; acquisition of Natomas wetland acreages to protect endangered species should have been considered.
- 2052 People should not be allowed to build in known flood zones.
- 354 The first step in flood control should be changes in Sacramento's land development policy to prohibit development in the deepest portion of the floodplain.
- 916 The many housing projects located within the floodplain have resulted in the obsession with the Auburn Dam.
- 183 This dam would only serve to invite excessive population growth and ecological degradation.
- 1917 Why should Auburn and Placer Counties sacrifice their unique canyon to cater to the development interests of Sacramento.
- 415 Control flooding by controlling development in the floodplain.
- 707 Growth should be limited. The impacts from growth should be analyzed.
- 1103 This project will lead to tremendous growth within Sacramento, which I don't know that we can handle as far as our resources and a lot of our situation currently including our current water sources.
- 1905 Potential for danger increases when there is more development in the floodplain.
- 1897 Sacramento leaders continue to build in the floodplain and wish to keep doing so without any protection.
- 1569 The end result of your project will be increased growth.
- 1963 The fundamental cause of Sacramento's flood risk is the encroachment of structures in areas that should be part of a floodway path for the American River.

- 1654 There should be a moratorium on all building in the Sacramento area floodplain.
- 681 This dam could allow more growth in the floodplain and put more people at risk.
- 2257 The TSP would provide flood protection to the entire Natomas island facilitating conversion of vegetated open space to urban uses. CEQA requires the document to discuss the way the TSP would remove obstacles to population growth. The limitation of the project impact analysis to construction activities is inadequate and disingenuous.
- 2174 The seemingly commendable goal of "flood control" should not be used to justify a dam which may do little more than spawn suburban sprawl in deep floodplains. For those existing structures which may be affected by a 400-year flood, it may be more cost effective to compensate landowners through the vehicle of public or private flood insurance.

Finally, I and the interests I represent am in support of full flood control project mitigation, including assuring that new development is not located in the deepest portions of the floodplain, acquisition of the Natomas wetland acreage to protect endangered species, minimizing the impacts on lower American River riparian habitat from levee improvements, and requiring allocation of Folsom Reservoir water for downstream fisheries in the project authorization.

**RESPONSE:** The purpose of the project is to protect the people and property currently occupying the American River floodplain. As discussed in Chapter 4 of the EIS/EIR, the 55,000-acre Natomas Basin constitutes roughly one-half of the floodplain portion of the study area. These lands were reclaimed from the historic Sacramento and American River floodplain in 1917 by means of a system of canals and levees constructed around the perimeter of the basin. New hydrologic data prepared in the aftermath of the 1986 flood indicates that this system provides less protection than previously believed. These data have caused the Federal Emergency Management Agency (FEMA) to include virtually all of Natomas within the bounds of the newly mapped 100-year floodplain. Only about 15 percent of the lands in the basin (7,260 acres) has been developed for urban use. Although this development is concentrated in the southern portion of Natomas, the most feasible way to protect the people and property occupying the area is by improving the existing perimeter levee system as proposed under the Selected Plan (see discussion of alternatives in Chapter VIII of the Main Report and Chapter 3 of the EIS/EIR).

Since the Selected Plan would remove all of the areas inside the perimeter levees from the new 100-year floodplain, the project would indirectly facilitate more intense urban development



throughout the basin. Whether or not this development is permitted is an issue to be decided by the local agencies with land use authority in Natomas. Each of these agencies is a participant in the National Flood Insurance Program (NFIP) and each has adopted appropriate floodplain management policies as required under the NFIP.

1952 Author should state whether indirect impacts are significant or not.

1996 Natomas discussion should be clarified as to whether it pertains to city portion or entire basin. Report should mention major direct impact of no-action alternative in exposing the basin to floods of up to 20 feet, resulting in the loss of use and destruction of most local and interstate roadway, and damage to Metro airport.

1998 Discussion of cumulative impacts appears limited to impacts arising from development in accordance with general plans in Sacramento and Sutter Counties. It should address cumulative impacts from pending revisions to those general plans.

1946 There is insufficient detail of growth-inducing impacts. Your report inexcusably defers analysis, claiming it to be a purely local issue. You don't describe how the TSP fosters economic/population/housing growth. Individual and cumulative impacts are ignored or given trivial mention.

1987 Dispute that Auburn Dam would induce growth in Natomas, Pocket, and Meadowview. Growth commenced prior to any plan for construction of ARWI project or flood control structure near Auburn. Natomas growth contemplated since at least 1983.

1951 Indirect impacts of growth are not discussed in sufficient detail to determine if they are significant.

1995 Pages 11-3 and 11-5 state project-induced growth caused the loss of 7,500 acres of currently zoned agricultural land and vacant land in Natomas Basin. This is inaccurate because the development plans for Sacramento and Sutter Counties were conceived before the 1986 floods.

1657 You assume 48,000 acres of residential development taken out of the floodplain x 5 units/acre (240,000 units). What are the impacts to public facilities?

**RESPONSE:** Based on decisions made when it was thought that Natomas had at least a 100-year level of flood protection, the City of Sacramento General Plan anticipates developing the incorporated area of the basin (north and south Natomas community plan areas).

The character and significance of the impacts likely to result from this development are discussed by impact category in the main body of the EIS/EIR. It also appears that Sutter County and Sacramento County may permit more intense development in their portions of Natomas, although these jurisdictions have yet to take any formal action in this regard. The potential for future growth in these unincorporated areas of Natomas and the impacts likely to result from such growth are discussed in Chapter 18 of the EIS/EIR.

1999 The ability to accommodate growth in the Natomas Basin would increase growth pressures on outlying communities, burden freeway infrastructure and transportation systems, would magnify urban sprawl by forcing growth into areas remote from employment, away from cultural and recreational opportunities in downtown Sacramento.

1103 We agree with the sentence on page 18-1 that the flood control project will have "negligible impact" on regional population growth. Development for Natomas was already in motion prior to the study for flood control.

2167 Page 12-8 of the DEIS states that "Since the growth constrained by inadequate flood protection would likely be absorbed elsewhere in the region, the effect of the no-action alternative on regional traffic would be minimal." Traffic impacts from growth elsewhere in the region would be much greater than traffic impacts from growth in north Natomas for the following reasons:

- North Natomas is within 5 miles of downtown Sacramento, and therefore commute distances to primary employment centers are short.

- The roadway infrastructure in north Natomas has been carefully planned to support growth in this area.

- North Natomas will be served by a light rail extension from downtown Sacramento to the Metro Airport.

- North Natomas contains the "critical mass" and density needed to support rapid transit.

- The North Natomas Business Association has developed a Transportation Management Association, with the assistance of a state grant, to implement measures to reduce vehicular travel.

RESPONSE: As pointed out in Chapter 18, the land made available for development in Natomas by the project is not critical to overall growth in the region. If no action was taken to exercise

greater control over flows in the American River, the regional growth which would otherwise have been absorbed in Natomas would shift to nonfloodplain areas outside the basin. (See Economic Impacts of the Proposed City of Sacramento Flood Policy, Economic and Planning Systems Inc., 1990, available from the City of Sacramento Planning and Development Department.) Thus, the project, properly speaking, is growth-accommodating rather than growth-inducing. The comparative environmental effects of accommodating growth in Natomas as opposed to other parts of the region are difficult to assess without knowing the location of the alternative development areas and the character of the development likely to occur there. However, as pointed out in Chapter 12 of the EIS/EIR, the City of Sacramento has found that regional air quality and transportation impacts could be reduced through concentrating development in centrally located Natomas, rather than permitting development to occur in a more dispersed pattern throughout the region.

1999 Chapter 18 doesn't discuss whether flood control alternatives will facilitate growth in south Sacramento and the lower American River areas.

2065 Growth-inducing impacts which would exacerbate water supply conditions in the lower American should be analyzed and avoided. Fisheries and other riverine resources already are stressed by current conditions and cannot endure further diversions or worsening Folsom Dam flow regime. We are concerned with any project that would further degrade aquatic conditions.

RESPONSE: As discussed in Chapter 4 of the EIS/EIR, the lower American River area consists of all of the lands outside of Natomas which lie within the 400-year floodplain. This area covers approximately 60,000 acres and accounts for a little over one-half of the floodplain. This area is substantially developed. Much of the remaining developable land is in fill in relatively shallow portions of the floodplain. It is assumed that these lands will be developed even without the project since compliance with local floodplain management regulations would not be infeasible.

This would not be the case, however, in the Meadowview area of the city below Meadowview Road, where approximately 1,400 acres of open space lie within a depression in the floodplain which is capable of flooding to a depth of 5 feet or more. Similarly, in the highly developed Pocket area of the city, where flood depths could reach up to 15 feet, about 100 acres of developable land remains vacant. This land is not likely to develop unless greater control over flows in the American River is achieved. Thus, as an indirect consequence of protecting existing development in the lower

American River area, the project would facilitate growth in a small portion (1,500 acres or 2.5 percent) of the area.

Based on local plans approved prior to full disclosure of the extent of the new 100-year floodplain, the city appears to be committed developing these two areas. Thus, the project would indirectly result in a wide range of significant growth-related impacts, including increased demand for water. These impacts are identified by impact category in the main body of the EIS/EIR.

2021 Why should I have to bear 70 percent of the cost of the TSP projects as a federal taxpayer, due to poor land use planning and management undertaken in the Sacramento area?

RESPONSE: The federal interest in the project and the cost-sharing formula which determines the obligations of the sponsoring agencies are determined on the basis of principles and guidelines adopted by Congress as part of the 1986 Water Development Act.

2112 Page DEIS 3-19, paragraph 3 - It seems appropriate to include discussion about the opportunity in Natomas to restore those reclaimed lands to their original state as floodplains and wetlands. The discussion here implies that existing landowners in Natomas are the original ones who reclaimed the land. This is surely not the case. It is well known that much of the land is owned by investors preparing to develop it to urban or industrial use.

RESPONSE: The current owners of the land in the undeveloped portion of Natomas may not be the same owners who benefitted from the reclamation effort which removed Natomas from the floodplain in 1914. However, as pointed out in Chapter 3 of the EIS/EIR, the current owners, by virtue of the rights they have acquired, could claim that their property is effectively being condemned by governmental action should an effort be made to restore the land to its original floodplain status. Such a claim would not necessarily prevent government from pursuing the opportunity to carry out the restoration. It would simply entitle the landowners to compensation. Given current price levels, the cost of this approach would be prohibitive.

1985 Growth forecasts should be flexible enough to accommodate new estimates contained in Sacramento and Sutter Counties' General Plan updates.

1986 Table 4-3 fails to consider impacts if south Sutter County's plan amendment is adopted. Similar revisions to Tables 4-2 and 4-3 need to be made based on Sacramento County's General Plan revision.

1999 Chapter 18 doesn't address growth-inducing impacts from increased development in areas other than Natomas. Should include other areas of Sacramento and south Sutter Counties.

1986 Table 4-2 fails to consider impacts to South Sutter County's proposed General Plan Amendment on residential, commercial, industrial, and agricultural uses.

**RESPONSE:** Growth forecasts have been included in Chapter 4 of the EIS/EIR to account for development anticipated under the Sutter County General Plan Amendment and the Sacramento County General Plan Update. The impacts likely to occur as a result of this development are discussed in qualitative terms in Chapter 18 (Growth-Inducing Impacts).

2258 The report must discuss ways in which the proposed project could foster economic or population growth, or the construction of additional housing in the surrounding environment. The analysis must discuss those project characteristics that may encourage and facilitate activities that would affect the environment. The lead agency must never assume growth to be beneficial but must analyze it.

2258 The DEIS is intellectually inconsistent regarding growth inducement for economic vs environmental impacts. It minimizes the growth-inducing impacts as it affects removal of open space and farmland to more intensive uses. It suggests this is inevitable. However, it minimizes the fact that expedited growth compared to slow growth results in significant impacts.

2244 Given the fact that without the TSP expensive flood insurance would be necessary to develop Natomas, the report's conclusion seems to underestimate the role of the TSP in inducing growth. To the extent that the DEIS does acknowledge it will induce growth, it offers no suggestions for mitigation measures to control or direct this growth in environmentally sensitive ways.

**RESPONSE:** As discussed in Chapter 4 of the EIS/EIR, the economic (cost/benefit) analysis of project alternatives assumed that each of these alternatives would permit floodplain areas to develop in accordance with existing adopted general plans. This approach is consistent with Corps policy and applicable federal planning principles and guidelines and is designed not to unreasonably

inflate the costs or benefits of the project. The environmental analysis on the other hand, assumes that the project will make it possible for the City of Sacramento to proceed with planned growth in the Natomas and Meadowview areas. The impacts associated with this growth are identified and appropriate mitigation measures are suggested. The EIS/EIR also includes a discussion in Chapter 18 of the impacts likely to occur in Natomas if Sutter County and Sacramento County proceed with the general plan modification which each jurisdiction is currently contemplating. This approach is consistent with CEQA and NEPA which require an evaluation of reasonably foreseeable impacts.

## NATOMAS LAND USE

1915 The Natomas area could be used as open space and for wetlands instead of development.

**RESPONSE:** The control of land use is the responsibility of local government. Land use projections were developed in accordance with adopted City and County General Plans. The creation and preservation of open space within the city limits would need to be addressed within the existing local planning process and cannot be mandated by the federal government.

1987 I dispute that the Auburn Dam would induce growth in Natomas, Pocket and Meadowview. Growth commenced prior to any plan for construction of the American River watershed project or flood control structure at Auburn. Natomas growth has been contemplated since at least 1983. By 1986, when flood control projects were contemplated, plans for growth in Natomas, Greenhaven, south Sutter County and Pocket were already in motion.

**RESPONSE:** As outlined in Chapter 4 of the EIS/EIR, the attainment of 100-year FEMA level flood protection will allow for the removal of existing flood restraints on growth and development in the study area.

1985 Page 4-8 - The discussion of no-action alternative impacts refers to commercial development in north Natomas but doesn't clarify whether it is referring to the Natomas Community Plan area or the entire basin, including Sutter County. This needs clarification. The evaluation should be extended to south Sutter County.

**RESPONSE:** The no-action alternative in Natomas assumes that after 1992 no further growth will occur in the basin. Thus, the existing condition and "without" project baseline are virtually the same. The reference to commercial development on page 4-8 of the draft EIS/EIR has been deleted.

2192 The analysis of loss of life assumes that with 100-year protection, more people would occupy the floodplain. That is not necessarily the case as the local land use agencies could decide 100-year level is inadequate to permit further development in Natomas. It is also flawed because it ignores

potential loss of life from flooding of internal water sources and the Sacramento River.

**RESPONSE:** One of the land use assumptions developed for this project is that the local land use agencies would proceed with development in Natomas even if Congress selected one of the 100-year (FEMA) alternatives instead of the Selected Plan. It is believed that such an alternative could increase the severity of a flood to such an extent that the reduction in the risk of flooding achieved by the 100-year (FEMA) alternatives would not offset the increase in the number of people and property at risk.

1984 The report fails to consistently define project area, i.e., Natomas, Natomas Basin, and Natomas area are used interchangeably, yet acreage figures for each are different. These definitions should be consistent throughout the report.

**RESPONSE:** Chapter 4 of the EIS/EIR contains a more precise definition of Natomas and the Natomas subareas which have been created to evaluate project impacts. When indirect impacts are discussed, Natomas is referred to interchangeably as the "Natomas area", the "Natomas basin", or simply the "basin" covering the 54,882 acres lying within the boundaries of the perimeter levee/canal system. When the discussion focuses on direct construction impacts, "Natomas" includes the levees and canals themselves and the areas of construction just outside the basin at the mouths of Dry and Arcade Creeks and in the vicinity of Sankey Road.

1984 Page 4-1, paragraph 5 - States that 25,000 acres in the southern portion of Sutter County will be rezoned from agriculture to residential, commercial, and industrial uses. This area includes 17,000 acres in Natomas. How much of Sutter County is in the floodplain?

**RESPONSE:** As discussed in Chapter 4, the south Sutter County subarea of Natomas encompasses 17,042 acres and is bounded by the Pleasant Grove Creek Canal and Natomas East Main Drainage Canal on the east, the Natomas Cross Canal on the north, the Sacramento River on the west and the Sacramento-Sutter County border on the south. About 95 percent of this portion of the basin lies within the floodplain. The nonfloodplain area occupies a high spot near Sankey Road. This area is considered too small and isolated to sustain development independent of plans for the south Sutter County area as a whole. Thus, for purposes of the indirect impact analysis, this area was treated as an integral part of the south Sutter County subarea.



## **NATOMAS PROTECTION ALTERNATIVES**

1985 We agree with the report conclusion regarding the infeasibility of the Natomas cross levee. However, another cross-levee alternative should be discussed. One could be built across the Natomas Basin in south Sutter County to bring that area out of the floodplain. An obvious drawback would be the failure to protect Sacramento.

**RESPONSE:** The maximum growth scenario discussed in Chapter 4 of the EIS/EIR (Land Use) assumes implementation of a cross levee at the Sacramento-Sutter County border.

2153 The construction of a new cross Natomas canal and levee to protect already developed areas was not fully analyzed in the report. Partial protection would allow continued agricultural production in the Natomas area and provide flood retention areas.

**RESPONSE:** A full discussion of the cross-levee alternative appears in Chapter 3 of the EIS/EIR and Chapter VIII of the Main Report. As noted, this alternative would not insure that the lands north of the cross levee would remain undeveloped. Once flows in the American River are controlled and the levees along the Natomas East Main Drainage Canal are raised as called for under the cross-levee plan, it would be possible for local interests to repair existing low spots along the Pleasant Grove Creek Canal and the Natomas Cross Canal in order to fully protect the northern portion of Natomas, thereby facilitating development in this area. These lands could be condemned and utilized as an agricultural/retention area but the cost would be prohibitive.

## **NO ACTION ALTERNATIVE**

2192 The no-action alternative states that without a project flooding would occur and other water resource needs and opportunities would go unmet (page V-21). What is this sentence referring to?

**RESPONSE:** The reference to unmet water resources needs has been deleted. Under the no-action alternative, uncontrolled flooding would occur in connection with storms of about a 70-year or a greater magnitude. It is, therefore, likely that over the 100-year period of analysis one or more flood events would occur.

33 I oppose the construction of the Auburn Dam and support only the no action alternative.

1563 No dam: Ninety-eight percent of the Roseville Historical Society is against the dam.

2135 One specific alternative that must be considered is the "no-project" alternative. While it may be useful to discuss impacts which result from no action on the project, the alternative of maintaining the present condition of the project site should also be considered. The EIS/EIR fails throughout to consider any alternative that maintains existing environmental conditions.

**RESPONSE:** The February 1986 storms over Northern California caused record floodflows in the American River Basin and significant flood damage. The flood threat to the floodplain of the American River, which includes the residences of nearly 400,000 people, puts those property owners at substantial risk. After consideration of the public testimony and comments on the report, both The Reclamation Board and the Sacramento Area Flood Control Agency have determined that their preferred alternative for detailed study in the final report is a flood detention dam at Auburn providing flood protection from a 1-in-200 flood event. Further study has shown that a higher level of protection is significantly more cost effective, and less environmentally damaging than lower levels of protection. The only way of obtaining a high level of flood protection (200-year or greater) is through the construction of additional storage upstream from Folsom Reservoir. This is discussed in the Main Report in Chapter IV, Plan Formulation Process and Flood Control Measures, Potential Flood Control Measures Section.

2192 The no-action alternative discussion should discuss the positive effects of preserving valuable farmlands, wildlife habitat, and recreation areas.

**RESPONSE:** The no-action alternative discussion in Chapter 9, Agriculture/Prime and Unique Farmlands; Chapter 7, Fish, Vegetation, and Wildlife; and Chapter 14, Recreation, of the EIS/EIR recognizes the value of existing farmlands in Natomas, and wildlife habitat and recreation in all portions of the project area by designating the loss of these values as a significant adverse impact of the project.

## NO DAM

93	199	559	512	904	1164	977
90	538	82	484	945	1311	984
373	468	126	283	1066	1517	1000
48	615	8	1386	1040	1774	47
58	49	50	52	54	56	57
75	59	62	66	68	69	71
84	77	76	78	79	80	83
12	86	89	91	92	152	208
42	115	109	118	114	155	140
4	132	107	127	164	157	134
11	133	106	128	147	205	135
43	119	112	98	149	160	166
22	110	120	94	150	162	139
346	333	291	298	310	163	326
317	342	294	299	311	405	330
336	340	295	352	313	422	345
344	331	296	320	289	421	325
332	300	168	309	319	417	360
432	363	401	245	307	416	409
353	362	400	231	634	458	408
429	403	286	190	635	465	406
428	442	398	192	637	462	415
426	357	388	209	638	511	435
431	354	387	207	645	461	424
404	361	399	175	633	510	423
367	373	167	179	539	487	437
364	368	584	237	608	473	535
284	402	567	238	616	490	531
186	282	568	239	593	498	516
224	195	569	240	598	489	521
215	194	578	244	602	537	526
225	297	571	203	606	538	457
226	169	577	232	607	474	519
228	187	572	183	586	483	455
210	256	585	180	615	475	525
229	196	564	214	610	504	456
212	251	541	188	611	505	523
246	201	543	540	612	499	524
273	252	544	563	613	495	520
274	200	545	446	614	515	814
275	199	546	632	609	454	808
276	255	547	618	550	527	811
278	171	548	620	466	528	813
279	272	566	622	506	529	806
172	261	551	625	471	530	817
281	198	552	626	470	518	827
828	870	554	627	468	532	825
784	871	558	617	509	533	668
799	867	757	599	494	534	671

786	872	708	1075	1060	29
788	840	704	1002	1059	2268
792	850	706	995	1037	
793	832	751	994	1038	
800	835	707	998	1039	
795	834	749	1069	1040	
796	838	703	1068	1063	
797	830	769	1078	1044	
692	849	699	987	1050	
794	842	787	978	1052	
783	844	693	979	1053	
866	846	722	980	1054	
853	848	698	981	1041	
859	841	776	1005	1056	
860	710	766	988	1064	
665	719	760	983	1031	
862	700	681	993	1008	
851	714	739	985	1009	
829	712	695	976	1011	
868	686	990	1076	1055	
869	690	989	1012	1014	

Common Comment #5: I am totally opposed to any dam on the American River.

674 This river means more to people than you expect. Don't build a dam.

1051 I recognize the many reasons for the dam but I wish to express my strong opposition to the project.

1763 I reject your 400-year dam proposal on all counts. There is little to recommend it.

1023 No convincing reason has been proposed for building yet another dam.

1114 We will fight the tentatively selected plan as vigorously as we will fight a multipurpose dam.

2006 We do not believe that the NED plan, proposing a 400-year level of protection, is worthy of future consideration.

2150 We disagree with the recommended plan and the process that led to its selection.

2157 We reject the Corps' preferred alternative to construct a 500-foot-high expandable and gated flood control dam. This proposal is environmentally destructive.

RESPONSE: The February 1986 storms over Northern California caused record floodflows in the American River Basin and significant flood damage. The flood threat to the floodplain of the American River, which includes the residences of nearly 400,000 people, put those property owners at substantial risk. After consideration of the public testimony and comments on the report, both The Reclamation Board and the Sacramento Area Flood Control Agency have determined that their preferred alternative for detailed study in the final report is a flood detention dam at Auburn providing flood protection from a 1-in-200 flood event. Further study has shown that a higher level of protection is significantly more cost effective, and less environmentally damaging than lower levels of protection. The only way of obtaining a high level of flood protection (200-year or greater) is through the construction of additional storage upstream from Folsom Reservoir. This is discussed in the Main Report in Chapter IV, Plan Formulation Process and Flood Control Measures, Potential Flood Control Measures Section.

- 250 The Auburn Dam would destroy recreational opportunities, wildlife habitat, fish runs, floodplain ecology, and a host of other ecological processes forever. The public doesn't want this dam.
- 729 Building this dam would destroy the sensitive river ecology of the American River.
- 728 I believe this dam would be a mistake. I am amazed at the variety of wildlife and hope you don't destroy it.
- 122 Kill your plans and not our wilderness.
- 444 This dam would wipe out beautiful country.
- 445
- 413 We have an incredible gift in the forks of the American River. The dam is not an appropriate solution.
- 414 I am truly amazed how lightly a natural wonder like the American River is being dismissed. A dam would be a national tragedy.
- 536 Damming the American River is not the solution to our problems. Look at all the other dams in North America which are virtually full of silt today!
- 1102 I am opposed to the dam. The North Fork of the American River is a very beautiful resource that we can't dam and destroy. If you look at the Stanislaus, you'll see the devastating effects of flooding a river.

- 629 A dry dam will wipe out trees and wildlife if it fills up. A multipurpose dam would be ugly and the water level would fluctuate like Folsom.
- 630 The Corps' revival of the Auburn Dam project is an unneeded, uneconomical, and environmentally destructive project.
- 730 After hearing the raft company's side, I urge you to stand up for nature - stand up for the little guy.
- 1058 It would be an incredible loss to California if the river was to be eliminated due to your dam.
- 831 Let's keep the few remaining rivers in their natural state. The quality of water in the Delta and bays is already damaged. Let's get smart and take care of what we have.
- 541 Dam completely unnecessary, appreciate beauty that will be ruined.
- 2157 We reject the Corps' preferred alternative to construct a 500-foot-high expandable and gated flood control dam. This proposal is environmentally destructive.

**RESPONSE:** Descriptions of impacts on environmental values and related changes resulting from all alternatives considered are included in the appropriate chapters of the EIS/EIR. Since the dam's only purpose is flood control, water would only be impounded behind the dam above the river scour zone for short periods of time (5 to 20 days) on an intermittent basis (on an average of only once every 5 to 10 years). These periods during which floodflows would be temporarily detained will occur during the winter rain periods when recreation is not generally taking place in the American River canyon; thus, impacts on recreational use of the River should be small. The environmental studies also confirmed that the vegetation and wildlife in the canyon can return unhampered once the winter flood detention recedes behind the flood control dam and that the visual and scenic value of the area will not be diminished.

- 410 The dam isn't necessary. Spend our money wisely on managing the facilities we already have.
- 689 Responsible operation of existing systems make a new dam unnecessary.

**RESPONSE:** Chapter II, Study Area, in the Main Report describes the existing flood control components and Chapter V describes alternative plans considered. Change in utilization of the existing water storage facilities would not provide a high level of

flood protection believed appropriate for the highly urban Sacramento area. Also, there would be direct and indirect impacts on environmental and related resources such as: Greater fluctuations in Folsom reservoir would affect spawning of warmwater reservoir species; lower spring flows and higher fall flows would create increased temperature problem. Higher floodflows in the lower American River would only achieve 85-year level of protection. A minimum 200-year level of flood protection can only be achieved through construction of an upstream detention facility.

121 There appears to be less costly, more environmentally sound alternative flood control systems that would be as, if not more, effective as the dam.

26 I feel that 100-year level flood protection is sufficient for Sacramento. I am totally opposed to any type of dam.

542 I have seen what is left of the Stanislaus River Canyon and I'm aware of the damage that water projects can do. Achieve flood control by reenforcing levees.

1106 Sacramento's flood needs should be met in some way other than the proposed alternative.

1204 We are opposed to the proposed plan. We'd look towards a smaller facility recommended by a number of organizations.

1100 I don't want a dam and I don't think we need one, but if one is to be built it must be a smaller, nonexpandable, totally dry dam with written assurances of no future dams on either the North or Middle Forks.

555 Restrict floodplain construction, upgrade existing levees to 150-year, expand parkways along the American River to prevent damage.

483 Instead of this proposed dam, how about the reoperation of Folsom Reservoir, proper management, and levee improvements.

**RESPONSE:** The Selected Plan is a detention dam providing a 200-year level of flood protection. Chapter VI, Plan Selection, in the Main Report has been revised to describe in more detail the cost, benefit, appropriate level of flood protection, and environmental justification for the Selected Plan.

1201 A dry dam is not acceptable because it only addresses flooding and doesn't help with droughts or energy needs, let alone quality of life.



**RESPONSE:** See response to multipurpose comments in the preceding categories of this Appendix.

1093 I've studied the history of rivers and river development and every time a dam is proposed, they underestimate its influence. They don't predict reservoir-induced seismicity and they didn't predict how bad the Stanislaus Canyon would be debilitated by New Melones Dam.

**RESPONSE:** Please refer to the EIS/EIR for a description of impacts. The issue of reservoir-induced seismicity (RIS) is discussed in the Main Report on page VIII-8. The impacts predicted for vegetation and wildlife are discussed in Chapter 7 of the EIS/EIR and in Appendix M.

544 Already too many dams in California.  
545

**RESPONSE:** Comments noted.

130 The dam is too large and too expensive.

**RESPONSE:** A flood detention dam to help provide a 200-year level of flood protection to Sacramento would provide net economic benefits, which are significantly higher than economic benefits provided by alternatives which provide lower levels of protection. Costs for the Selected Plan would be shared among federal, State, and local interests. Cost-sharing reduces the economic burden on any one entity. Chapter VI, Plan Selection, in the Main Report has been expanded to include a more complete discussion of the economic justification of the alternatives.

## NOISE

- 1937 Such wording as "where practicable" and "to the maximum extent possible" in relation to mitigation is unacceptable under CEQA. All mitigation in this section should be rewritten to include specific actions.
- 2055 I found no mention in the DEIS/DEIR of noise pollution to the upper American River associated with aggregate processing and transport to the damsite.
- 1980 Table 13-2 states that the TSP would create significant increases in noise. However, there is no discussion of this in the text.
- 1979 DEIR should consider a worse-case scenario and estimate the amount of construction traffic generated. This would allow an engineer to preform a fairly reliable noise analysis.
- 1996 EIR should address noise issue where excavated material for 400- and 200-year dams will be transported. Area where material is dumped will have noise impacts during construction.
- 2233 The relocation of Highway 49 will generate traffic in the Auburn area but until the number and types of transport equipment are known, the extent of the noise generated by those activities cannot be determined. When will this information be determined?
- 2232 On page 13-2, the DEIS states that some sensitive noise receptors are present near some of the Natomas construction areas, but fails to identify those receptors. Without knowing the number and nature of the receptors, the public and the decision-makers are unable to assess the significance of the potential noise impacts.
- 2233 Please analyze the total impact in a construction area from both construction equipment and construction traffic noise. A determination of significance and the development of mitigation measures must be based on this combined analysis.
- 2233 Implementation of the mitigation measures should be the responsibility of the project sponsor not the equipment operator. Moreover, the argument of preemption from local noise ordinances conflicts with the requirements of CEQA and NEPA. Identified impacts must be mitigated or avoided if feasible without regard to preemption concerns.
- 2232 Please provide noise contours for all of the construction areas based on the available information regarding noise

levels of construction equipment. This analysis cannot be avoided by stating that the number and types of construction equipment are unknown at this time. Under these circumstances, both CEQA and NEPA require that a worst-case analysis be performed.

- 2232 Please discuss for each of the construction areas whether any local noise abatement ordinances would limit the hours of operation and the noise level of construction equipment. If so, these ordinances should be adopted as mitigation measures for the potential noise impacts.

**RESPONSE:** Additional information has been added to Chapter 13 of the FEIS/EIR including: results of computer noise modeling, contour mapping and identification of sensitive receptors; more specific mitigation measures including restrictions to hours of construction; and analysis of upper American River area construction impacts including aggregate extraction and transport. The specific noise measures to be included in the mitigation monitoring plan would be finalized during the planning and engineering design (PED) phase which would begin immediately following Congressional authorization of the project.

- 1996 The discussion in Chapter 13 of the EIS/EIR fails to say whether it applies to city portion of Natomas or the basin as a whole. Report should acknowledge that construction noise would probably not be greater than that of noise of agricultural machinery in operation in the Natomas Basin.

- 1936 The report should consider a worst-case scenario for noise during construction and estimate how much noise will be generated from construction traffic. To state that a lack of information prevents analysis of impacts and mitigation is a violation of CEQA.

- 1896 Describe more fully what we can expect in the way of noise from construction activity.

- 2137 The discussion of noise impact mitigation is inadequate. Measures are discussed in very theoretical terms, with few substantive recommendations for direct impacts. The discussion is slightly more specific for indirect impacts, but still no recommendations are made.

**RESPONSE:** The analysis of noise impacts in Natomas appearing in Chapter 13 of the EIS/EIR evaluates the noise associated with construction and operating the levee improvements and other facilities required under all of the alternatives, and the noise impacts associated with growth in the basin under adopted general plans. The construction and operational impacts would occur at

sites along and adjacent to the perimeter levee system in portions of the basin lying within the City of Sacramento, Sacramento County and Sutter County. Growth-related impacts, because they are assessed based on adopted local plans, would occur primarily in the city's south and north Natomas community plan areas. The potential for growth-related noise impacts beyond these areas is discussed in Chapter 18.

1937 There is no discussion of the TSP-created significant increase in traffic noise along the Highway 49 realignment. What is the projected postproject area buildout along this realignment? Noise contours for these volumes? Are there noise receptors along the alignment? What is the significant noise impacts referred to in Table 13-2? What mitigation measures are proposed?

RESPONSE: Because any relocation of Highway 49 would be subject to the State-required route adoption process, several alternative alignments would be studied and the environmental impacts associated with each reviewed and compared. Consequently, a preferred alignment has not been identified at this time. The ultimately selected alignment would be subject to the mitigation of any potentially significant noise impacts.

For a detailed discussion of the specific noise impacts listed in draft EIS/EIR Table 13-2, refer to the revised noise analysis contained in Chapter 13 of the FEIS/EIR.

2232 The Corps states that construction activity will typically occur during daylight working hours. Will there ever be nighttime operations? When will the Corps know this information? Truck traffic associated with transporting heavy materials and equipment would be the most important project-generated noise impacts. What are they and what would they affect?

RESPONSE: Chapter 13, Noise, of the EIS/EIR has been rewritten to be more specific concerning impact identification. Nighttime truck activities would not occur in residential areas. Construction operations in these areas are limited to daylight hours (refer to Chapter 13, Noise Mitigation). The only nighttime construction-related operations could occur at the Old Cool Quarry during aggregate mining which would include processing operations; blasting would be restricted to daytime hours. These operational impacts were found to be less than significant given the elevated noise levels associated with existing operations. Aggregate would be transported by conveyor and, therefore, trucks would not be

used. The specifics concerning scheduling would be determined at the preliminary engineering and design stage.

## OPERATIONAL CRITERIA OF GATES

1546	1581	1615	1721	1730	1746
1919	1893	633	760	684	706
668					

Common Comment #6 - It appears the sluice gates could close at least once a year or during periods of drought for water supply.

1435 The too easily expandable gates should be removed.

1758 We are afraid that the gates would be permanently closed in the future.

1903 I don't trust the gated dam will not be used for permanent storage.

1174 The gates pose a great environmental threat and if they are closed for safety (not necessarily Sacramento's), the canyon could be inundated for weeks or months and would cause a massive vegetation impact.

415 What exactly would the criteria be for a dire emergency? Would it be "written in stone"? Who would decide?

665 The gates and expandable features will insure that, sooner or later, the canyon will be flooded permanently.

23 An expandable and gated flood control structure will only serve to guarantee that the upper river canyons will eventually be flooded.

373 Instead of a bypass tunnel, you have included gates which could be closed at the discretion of the operator. This means that it could be upgraded to a multipurpose dam and death to the river.

26 It appears that the sluice gates could be closed at least once a year and possibly more.

163 The gate, as well as the expandable features, simply insure that the upstream canyon will be permanently flooded sooner or later.

179 This gated flood control dam insures that the canyon will be permanently flooded sooner or later.

36 The tentatively selected plan would flood up to 40 miles of the North and Middle Forks of the American River for weeks at a time and would lead to the permanent destruction of them

when the gates are closed during dry periods for water storage.

- 508 These gates would not be limited to closure during emergencies but would allow the reservoir to be filled. The design of the dam with expandable features obviously indicates that the gates are more than an emergency measure.
- 1211 Downsizing, relocating, and changing the formation of the gated sluices in the dry dam can only cause increased incidents of water impoundment at the dam and greatly impact the ecology.
- 1918 How does the Corps define emergency flood situation, 20 feet upon the wall, 50, 300 feet? What is the definition of an emergency?
- 1173 Those gates are there for a safety feature and are easily closed. Safety is a relative thing and perhaps not safety for Sacramento but the Delta or somewhere.
- 1741 The outlet gates would be too much of a temptation, even if it is not within the mandate of this project.
- 889 I am deeply worried that once this convertible dam is built, no one can guarantee me that some administration will not find a way to change the definition of an emergency and fill the canyon needlessly.
- 1588 I do not trust the Corps not to close the gates and fill the reservoir. I also do not trust the Corps not to expand the dam.
- 1545 If there is a need for a dam, it should be constructed without gates.
- 1790 I do not understand the reason for building gates that are not to be closed.
- 1097 I don't really believe the gates will stay open once they're there.
- 1911 I see the dam as a gated structure. No problem to close the gates and you have a multipurpose structure.
- 1823 If the gates can be closed during an emergency, who defines what constitutes an emergency? Would a water shortage be justification? What policies and procedures must be followed in order to close them?
- 1575 Flood control is the only justification for the dam; therefore, the gates and expandability are not acceptable.

- 1742 I did not find any cost-effective reason to have a gated structure.
- 1882 I oppose the project because it is gated.
- 1828 I do not think the gates are needed. 115,000 cfs release and 400,000 acre-feet of flood storage at Folsom should safely allow for a small permanent hole in the bottom of the dam.
- 1419 This dam should be for flood control only. No gates or expansion features.
- 1115 Let the experts decide whether or not the dam is going to be gated or not and authorize it at the earliest possible time.
- 1195 The gates are for safety only since the State will operate the project, that should alleviate concern about the gates being a veiled multipurpose project. We need testimony from the State about the gates.
- 1921 Gates are not needed since you would have 115,000 cubic feet per second of release and 400,000 to 600,000 acre-feet of storage at Folsom.
- 1849 Main Report, page VII-2 - Corps should fully document and support their position that service gates are an essential and necessary safety feature.
- 1509 I am sure that this dam would be used to flood the canyon permanently eventually.
- 1421 I do not want to take the risk that a new dam will someday be filled no matter what promises are made to the contrary.
- 1271 There is the real possibility that in the future a change in policy would allow the area to be permanently flooded. That should be avoided.
- 434 The proposed dam only ensures that the canyons upstream from it will be permanently flooded.
- 464 The pretense that a "dry dam" can be constructed which will not flood the canyon is only a pretense. Any such structure will only assure the flooding and ruin of the canyon in the future.
- 889 This 500-foot-high dam seems far in excess of the federal requirements for flood control.
- 1325 The dam will eventually be used to flood the canyons.



2035 The temptation to use the full capability of the proposed project is too great.

**RESPONSE:** Please refer to the response and comments related to Outlet Works (Gates). Again, the purpose of the project is flood control. A change in the purpose and structural modifications needed for additional purposes would require reauthorization by Congress. Reauthorization would be dependent on full economic, institutional, and environmental justification and documentation.

1532 Periodic filling of the river will kill plants and animals.

1662 The proposed dam will flood valuable areas of the North and Middle Forks of the American River.

**RESPONSE:** Impacts due to infrequent inundation are described in Chapter 7 of the EIS/EIR and in Appendix Q, Inundation Impacts.

1969 EIS/EIR must fully analyze the effects of gate-closure as well as outline all the specific conditions under which an emergency might be declared and what effect it would have on vegetation mortality in the canyon.

2026 What will be considered an emergency that will close the gates? It should include flooding related to 100- and 150-year floodplains. What about another drought? Is that an emergency? If so, then shouldn't your plan really be a multipurpose dam?

2053 Who will decide what kind of emergency warrants closing the gates?

**RESPONSE:** The decision criteria for closing the gates during a system emergency (i.e., imminent failure of levees in Sacramento) would be a joint decision made by the State/Federal Flood Operation Center in cooperation with the Corps of Engineers, Bureau of Reclamation and City and County agencies. This decision-making process is discussed in detail in Chapter VIII of the Feasibility Report.

1945 There is no mention of environmental features during dam operation in times of flood water storage for the TSP. Project description doesn't include proposed duration of the flood water storage.

**RESPONSE:** The various chapters of the EIS discuss impacts to the canyon environment as a result of the flood detention dam, primarily in Chapters 7 and 14. Floodwaters will pond behind the dam for a few days for the 100-year event and up to a week for the 200-year flood as they are being regulated out to the downstream flood control system.

2197 Is there any physical barrier to replacement of the "emergency" gates with more secure gates at a later time? Please acknowledge that this design feature, and the existence of the dam itself, will enhance future plans for a multipurpose dam.

**RESPONSE:** While there is no physical barrier that prevents the emergency gates from being structurally modified and a gate system installed that would allow operation of the gates for water storage, it must be understood that the authorized purpose of the project is for flood control only. Addition of any other purpose to the project, such as water supply, would require separate Congressional authorization and environmental documentation.

2199 Environmental impacts associated with the inundation behind the dam resulting from emergency gate closures, which the document indicates are anticipated, are missing.

2193 Page VIII-19 states that the need to gate the sluices was examined in detail. However, none of the detail was provided in the report. There must be a full discussion of the justification for the gates, the expected frequency of use, the environmental impacts resulting from that use, and the incremental benefits in flood protection they would provide.

**RESPONSE:** Impacts due to infrequent inundation are described in Chapters 7 and 14 of the EIS/EIR and in Appendix Q, Inundation Impacts. It is not expected that the emergency gates will ever be used for system emergency storage. They are provided as an emergency contingency in the event that the downstream levee system should ever be threatened. Expanded discussion on the potential emergency use of the gates has been included in Chapter VIII, Special Topics, of the Main Report.

2193 Page VIII-19 states that the need to gate the sluices was examined in detail. However, none of the detail was provided in the report. There must be a full discussion of the justification for the gates, the expected frequency of use, the environmental impacts resulting from that use, and the incremental benefits in flood protection they would provide.

RESPONSE: Chapter VIII of the main report has been expanded to describe in more detail the emergency gates proposed for the outlet sluices. Since these gates are for emergency purposes only, no frequency of use has been assigned. No incremental benefits through increased levels of flood protection are provided by the gates.

## OUTLET WORKS (GATES)

1981 Page M-5-25 (Appendix) "Should dry dam concept be adopted, the possibility of a large slide damming the river and creating essentially an ungated structure will be considered." This possibility has not been addressed for River Mile 20.1.

**RESPONSE:** Appendix M, Geotechnical, addresses slides at River Mile 20.1. Additional information on reservoir rim stability is also discussed in the Geotechnical Appendix, Reservoir Rim and Slope Stability Chapter. There is no slide of the magnitude described at River Mile 22.4 in the vicinity of River Mile 20.1. There is a smaller slide at 20.1 which will be removed during construction of the flood control dam. It is not possible to predict with certainty if and when the slide at 22.4 would fail or to what extent it would fail. The rim stability analysis identifies this as an area of historic instability. The worst scenario would be that the entire slide would move and block the river. This could create a pool of approximately 200-foot depth. If the slide were not breached and carried away by floodflows, it would constitute an emergency condition and would have to be breached by other means. Flows from the breached slide would be controlled by the downstream flood control structure. This pool could exist for one to two weeks. Impacts to environment would be similar to those described under flood control pool inundation impacts.

1962 This dam must not have gates or other elements that allow more frequent and lengthy inundation of the canyons, or whose operation significantly degrades the natural, scenic, or recreational resources of the upper American River canyons.

1849 Main Report, page VII-2 - The Corps should fully document and support their position that sluice gates are an essential and necessary safety feature.

**RESPONSE:** The purpose of the gates is for system safety. They would only be closed to protect the downstream flood control facilities from failure or for periodic inspection during dry seasons.

2134 While both gated sluices and the diversion tunnel are discussed in the report, there is no information supplied indicating which feature would be most easily converted to accommodate water-delivery outlets or penstocks. This information is crucial to intelligent decision-making on this project.

**RESPONSE:** The stated project purpose of the dam and associated facilities is flood control only.

## **PALEONTOLOGICAL RESOURCES**

1805 Paleontological resources are not addressed in your reports. In order to comply with NEPA and CEQA, the potential negative impacts must be assessed. There are two Late Pleistocene local faunas known from the upper American River area. There is a high potential for occurrence of additional paleontological resources nearby.

RESPONSE: A description of paleontological baseline conditions and impacts has been added to the final EIS in Chapter 9, Cultural and Paleontological Resources.

## PLAN FORMULATION

159	290	285	355	349	287	348
288	290	385	507	576	460	439
492	438	441	485	513	497	591
590	594	680	603	583	702	716
605	723	798	75	160	148	310
344	203	360	202	215	350	400
399	252	333	273	416	447	595
608	607	563	540	543	577	570
707	795	123	326	206	346	609
422	459	777	662	351	256	510
484	791	1241	1287	1456	1346	1345
1458	1344	1617	1508	1608	1509	1522
1504	1622	1629	1724	1779	1790	1723
1745	1754	1886	938	816	837	936
928	1159	985	1222	1275	1277	1247
1254	1327	1408	1399	1566	1524	1752
1796	1676	1756	1788	1789	1697	1732
1859	1731	1685	925	1139	1028	853
943	1143	1078	980	946	1332	1433
1272	1362	1152	1330	1623	1677	1776
1581	1663	1593	1525	1551	917	1335
1569						

I urge the Corps to consider less environmentally destructive alternatives than the 400-year dam.

2074 Building of the 400-year dam at the proposed site is inappropriate.

1211 Natomas does not warrant 400 year flood protection and certainly not at the expense of the American River canyons.

**RESPONSE:** The Selected Plan has been changed to accommodate a locally preferred plan which provides the minimum level of protection acceptable to the local sponsor. The proposed "200-year project" is considered to have the widest community acceptance, achieving a high level of flood protection while ensuring neutrality with regard to possible future expansion for other uses. More detailed descriptions of environmental impacts have been included in the Feasibility Report, Chapters V and VI, "Alternative Plans Considered" and "Plan Selection Process", to identify the least environmentally damaging alternative. Chapter VI of the main report includes justification for the final plan selection. Appendix G also discusses the least environmentally damaging alternative that meets the project purpose. The Selected Plan protects a wider area than just Natomas.

2113 Page 6-21, paragraph 2 - Diversion of the stream into alternate channels could cause additional impacts on aquatic or terrestrial habitat.

**RESPONSE:** See revised Chapter 6.

1411 If a dam has to be built, I'd like it to be one that produces a lake and not a hydropower dam that sucks up water and spits it out to make a mud hole.

**RESPONSE:** Comment noted.

2192 It is stated that a project providing less than 200 year protection does not have a non-federal sponsor. This is misleading. While local sponsors have expressed a preference for 200 year protection, it is unlikely they would reject federal funding for a lower level of protection.

**RESPONSE:** The non-federal sponsor would not reject federal participation in 100 year level of protection. However, the local sponsor has expressed a willingness to participate in a project of 200 year level of protection or greater.

1848 Page II-17 - The description of the current flood insurance situation is unclear regarding residential and commercial development. The revised DEIS should explain existing FEMA requirements and constraints.

**RESPONSE:** See revised Chapter II of the Main Report.

1763 My suggestion is to manage the river and adjacent natural areas with a system of ditches to safely allow flooding in those areas, whose riparian forests would most benefit.

**RESPONSE:** Existing development within the floodplain restricts the ability to develop such a natural system. Furthermore, it is unlikely such a system can be developed to control such high flow rates and volumes of flood water generated in large flood events.

2118 Page 9-18, paragraph 2 - There are small agricultural ditches in the Sacramento Weir area and the Fremont Weir area that may be affected by proposed construction.

**RESPONSE:** The Fremont Weir is no longer a project feature. The Selected Plan does not impact the Sacramento Weir area. Impacts to these ditches, while not extensive in detail, would not make the alternatives to the Selected Plan any less desirable.



1976 Study concludes that impacts on fisheries, wildlife, and vegetation of the 100-Year Storage alternative would be similar to the 150-Year alternative even though it is significantly different in every way.

**RESPONSE:** FEIS has been expanded to further detail impacts of these alternatives. Please see Chapter 7.

1099 A dry dam of this magnitude is idiotic, despite the fact the dam will not survive 400 years. This dam will become a 150 year dam and will be over half full of water if perchance it is properly managed.

**RESPONSE:** Comment noted.

#### Less Environmentally Damaging Alternatives

1831 Implementation of other combinations of temporary and permanent protection alternatives may provide adequate long-term flood protection with fewer, less severe cumulative impacts to the environment. Options should be disclosed and compared in one document for well-informed decision-making.

683 I am opposed to any dam which causes change in the river system and the subsequent negative impacts.

565 I am opposed to any level of protection that will destroy the American River.

161 I believe in people's wealth of knowledge to find better solutions to our water problems. A better, less destructive solution would be greatly appreciated.

3 I believe there are less environmentally destructive methods of flood control.

2071 We wish to go on record as strongly opposing the dry dam.

2159 Any alternative that relies solely on increasing the capacity of the lower American is undesirable because it will result in environmental damage due to levee repairs and increased chance of loss of life and property should a levee fail.

2059 The proposal ignores adequate protection of existing river environment and its value as a recreational resource.

1965 The Corps would have the public and the decision-makers believe there are no alternatives that provide high levels of protection without heavy impacts. Or they have gone to a great deal of effort to hide them in a confusing muddle of

alternatives that were tossed out early in the process; none were justified by the EIS.

1511 There are less costly alternatives.

1440 There are lower cost alternatives that should be looked at further.

803 This dam is environmentally unsound. It will flood the forks of the American River. Please don't ruin our lands, rivers, and people's hearts.

51 The environmental and recreational impacts of your proposal are too severe and damaging. I urge you to find alternatives which would minimize environmental damage and protect this valuable recreational site.

198 I support any plan that will afford acceptable protection with less environmental destruction.

57 This dam would destroy the riparian ecosystem of both the Middle and North Forks of the river. Rivers are necessary for life.

93 I don't think the Corps addresses all the environmental issues raised by this controversial project.

55 This plan will cause unacceptable environmental deterioration.

783 I support alternative flood control projects with minimal impact on the lower American River and to protect all wildlife.

1010 I support reasonable flood control alternatives that preserve the river and its natural environment.

877 We request that you consider alternative measures which will not have such a permanent effect on this beautiful wild area around the American River.

893 I am concerned that this natural beauty given to us so graciously by the good Lord is being toyed with by "god-like man", that we and all future generations may never enjoy one of His masterpieces.

1096 I am concerned that a cheaper, less environmentally damaging alternative has not been seriously considered and just given lip service.

1894 I oppose your plan because of the devastation that it would cause to the upper canyon.

- 1116 Flood protection can be achieved that both protects people and avoids destroying portions of the American River, either the upstream canyons or the lower American through Sacramento.
- 1314 Support alternative measures that do not harm the canyons.
- 561 I recommend an alternative that will allow canyons to remain in their purest state for future generations.
- 414 Although Sacramento needs additional flood protection, the answer is not to threaten one of America's wild and scenic rivers. Alternative measures should be adopted.
- 623 I am opposed to any plan that might compromise the recreational value of the river.
- 793 I believe alternative environmentally sensitive means exist to achieve water conservation goals which are the Corps' responsibility.
- 134 While it is necessary to protect the Sacramento population, other approaches to flood control are feasible and merit further investigation.
- 204 You could find an alternative beneficial to everyone.
- 1465 There are other alternatives that can be employed to create the same effect without destruction to the river environment.
- 1105 With only 5 percent of our rivers undammed, we should evaluate every alternative before destroying this irreplaceable resource.
- 313 Your dam will destroy environmental, wildlife, cultural, historic, and recreational areas.
- 1122 I'm sure there are other alternatives you could consider so we can avoid the terrible loss of historic sites and recreation that would be caused by the Auburn Dam.
- 755 I prefer a smaller solution which would not permanently flood the canyon. A lower level of protection and less environmentally destructive alternative should be considered.
- 1835 The DEIS doesn't adequately assess the potentially significant environmental impacts of the proposal. It doesn't provide enough information to determine the least environmentally damaging alternative, or evaluate the 100-year protection alternatives as thoroughly as the TSP.
- 1965 What is not displayed is any alternative which provides a high level of protection while sparing environmental effects of a

large dam or the heavily damaging measures on the lower American.

2004 I support other flood control measures that I feel are more sensible and will preserve the North and Middle Forks of the river as wild and scenic.

2174 Historically, approximately 17 of America's natural rivers have been dammed. However, we have given ironclad protection to only 1/4 of 1 percent, or 9,000 miles. For every river mile preserved, 65 miles have been dammed. The 500-foot-high Auburn Dam will have enormous irreversible consequences on one of the few remaining pristine riparian areas in California.

782 I support alternative flood control projects with minimal impact on the lower American River and to protect all wildlife.

**RESPONSE:** Protection of the Sacramento area against potential flooding unavoidably requires some action that impacts environmental resources of the American River. However, by constructing a flood control project, the environmental impacts associated with flooding are avoided, i.e., residual flood damages are reduced.

All alternatives considered impact some part of the American River. The alternatives providing protection levels less than the 200-year-level impact primarily on the lower American River below Folsom Dam. Alternatives providing protection levels of 200-year and greater avoid impacts to the lower American River but impact the upper canyon. The EIS and Appendix G has been revised to clearly identify the least environmentally damaging plan. This plan would provide a high level of flood protection and includes a flood detention dam near Auburn which avoids impacts in the lower river. An analysis of the impacts for each of the alternatives can be found in the EIS/EIR, Chapters 4 through 19.

EPA has asserted that implementation of other combinations of temporary and permanent protection alternatives may provide adequate long-term flood protection with fewer, less severe cumulative impacts. A discussion of cumulative impacts can be found in the Comment Response Appendix-Folsom Reoperation, comment number 1831. It must be stressed that temporary reoperation of Folsom is not considered a pre-project condition. EPA contends that an estimate of total cumulative impacts of a temporary Folsom reoperation combined with a long-term solution could result in a fishery loss that approaches 100 percent over the life of the project. This condition would only occur in the event that reoperation of Folsom Reservoir continues on a permanent basis combined with the temporary reoperation. Implementation of a dry dam in the upper American River canyon and return to "normal operations" in Folsom would allow a recovery from temporary fishery impacts. Furthermore, the possibility that temporary reoperation

of Folsom Reservoir not occurring exists. In this case, no impacts whatsoever to the lower American River fisheries would occur and implementation of the selected plan would provide high levels of flood protection.

Other feasible, less environmentally damaging, and practicable options to provide temporary flood protection do not exist.

1983 On page 21-24, the DEIR states that there would be no long-term irreversible impacts from the TSP. What about wildlife habitat, recreation, visual resources, water quality, soil erosion, noise, traffic, and population growth?

RESPONSE: Mitigation for all impact categories mentioned has been provided in the plan or through agreements with the nonfederal sponsor regarding indirect impacts to the fullest extent possible. Obviously, not all impacts can be fully mitigated such as visual impacts of the dam. Chapter 22 summarizes the project mitigation measures.

#### Better Use of Existing Flood Control Protection

498 Levels of flood control proposed can be achieved by existing  
499 controls.

311 Consider other methods such as the 100-year levee/storage alternative.

540 I believe there are other ways of satisfying the 100-year level without resorting to a dam.

679 Instead of a dam, consider different operations of existing dams on the American.

516 Better water management of existing facilities, levee improvements and tighter control on development in the flood plains makes more sense than a dam.

RESPONSE: Various nonstructural flood damage reduction resources were evaluated. They are described primarily in Appendix B. The primary conclusion was that these measures would be ineffective due to the great depths of flooding expected and impractical given the significant magnitude of existing residential, commercial, and industrial development in the floodplain. Additionally, several alternatives were analyzed which provided protection for only the existing development in Natomas. These alternatives were discarded as not economically feasible.

### 100-Year Level of Flood Protection

- 574 I am opposed to any level of protection that destroys the American River. We can achieve 100-year protection without any dam at the Auburn site.
- 364 Sacramento can achieve 100-year flood protection or greater without a dam.
- 2052 It is my feeling that 100-year protection can be accomplished much more economically by use of other measures.
- 1965 None of the 100-year alternatives provides a high level of protection, giving the preferred alternatives more of a chance to succeed.

**RESPONSE:** The Feasibility Report includes a description of various alternatives capable of providing a FEMA 100-year level of flood protection. It would not be prudent for Sacramento to rely on the minimum FEMA 100-year-level of protection on a long-term basis and, thereby, risk a repeat of the near catastrophe of 1986. FEMA 100-year is only an actuarial standard and is not intended as a public safety objective. It was adopted on a national basis in 1973 as part of a compromise designed to facilitate establishment of the National Flood Insurance Program. It was not intended to guide high-risk areas like Sacramento in formulating an appropriate flood protection program.

The level of flood protection that is needed for Sacramento is a level which is economically justifiable and a level that the community can afford. In November 1989, the State adopted the position that at least 200-year or greater protection was appropriate for the highly developed Sacramento area. This high level of protection is needed for Sacramento because of: its location at the confluence of two major rivers, its highly urbanized character and the severe threat to public safety and property damage if the system's flood capacity should be exceeded, the potential depth and speed of flooding should a levee fail, and uncertainties associated with estimating flood frequency for the American River.

- 1976 For the 100 year level, detailed descriptions of measures required along the American River are missing from your report.

**RESPONSE:** Detailed descriptions can be found in Chapters 5 and 6 of the Main Report.

- 1966 Is the FWS preparing a biological analysis of the levee alternatives for the final EIS? Some estimate must be made,

using the best technique available, to reasonably estimate what will be lost.

**RESPONSE:** Additional details can be found throughout the FEIS.

2205 From the information on pages B-9 and B-10 it appears that this project element alone would accomplish 100+ year floodflow protection on the lower American. From the project hydrology it appears that the mutual American/Sacramento river flood project would only provide somewhat above 100 year protection anyway.

**RESPONSE:** Up to a 150-year level of protection can be accomplished through a combination of lowering the Folsom spillway, modifying Folsom flood control storage, and modifying the objective release. The selected plan is designed to protect against a 200-year flood event on the American River irregardless of the concurrent event on the Sacramento River.

2200 Appendix M, Table 2 is in error because at 130,000 cfs one of the locations did not exceed the prescribed parameter threshold; it matched the specific maximum value without exceedance. Therefore, only four locations exceeded the parameters at this discharge.

**RESPONSE:** Comment noted. Remedial work required for a 130,000 cfs release rate in the lower American River is described in the Design and Cost Estimates Appendix, Levee Alternatives Chapter, 100-Year, 130,000 cfs Alternative Section. Even though the one location at 130,000 cfs did not exceed the parameter, it was close enough to warrant attention. When an urban area depends upon high levees for flood protection, it is imperative that all potential weak spots be identified and fixed. To ensure a conservative and safe design, this marginal location was included as a potential weak spot and included in proposed remedial fixes for all alternatives which included a 130,000 cfs release rate as a measure. Typically, locations with marginal problems contained simple fixes and the reaches identified for work were short.

#### Nonstructural Solution

358 I don't want to pay for an Auburn Dam with my taxes. We need to conserve our remaining open rivers and come up with better agricultural, residential, and industrial development plans.

582 Local flood control methods at less cost should be considered.

- 71 A more suitable alternative is to expand land acquisition in the American River Parkway, providing natural flood channeling.
- 72 What nondam alternatives have been truly considered?
- 1514 Flood control can be achieved far less expensively if we insist on people not living in the floodplain.
- 373 There should be no further development in the floodplain. Restore a meander belt and riparian zone along the lower American River as an economical and natural means of flood control.
- 1467 Any proposal should include an absolute prohibition on new structures in the floodplain and purchase of wetlands in Natomas.
- 1927 Shouldn't we provide Natomas with 100-year protection and encourage development elsewhere, like east of Sacramento, which is not subject to levee breaks?
- 2189 The rejection of nonstructural measures is also inappropriate. There is no analysis of whether development restrictions in Natomas might be necessary even if a dam is built because it is still at risk from the Sacramento River. The project would facilitate growth in an area that will always be at risk.
- 1955 The Natomas Basin should be rezoned to prohibit further development and flood protection should be secured for existing development. Some levee repairs would be needed but it would minimize flood risk, move development to areas with higher base elevations, protect nesting and foraging areas in Natomas, and would protect upstream conditions.
- 2182 Despite a dam's vast storage capacity, a low storage yield ratio creates "large and widespread environmental losses" - a reservoir less than half full more than half the time results in an unattractive recreational resource at an outrageous price. Added restrictions on future development in the floodplain through restructured zoning laws is also an idea that appears to have gone unnoticed in this report.
- 2152 The increasing emphasis on nonstructural measures in federal water resources policy is virtually ignored in this feasibility report. Nonstructural alternatives are dismissed in a few paragraphs. This study does not recognize the limitations of engineering works.
- 2189 The rejection of nonstructural measures is also inappropriate. There is no analysis of whether development restrictions in Natomas might be necessary even if a dam is built because it



is still at risk from the Sacramento River. The project would facilitate growth in an area that will always be at risk.

- 2152 A major activity of water resources planning should be to formulate the mix or package of structural and nonstructural tools that makes the most satisfactory contribution to achieving stated objectives in an economically efficient and environmentally benign manner.
- 2127 In the nonstructural measures, paragraph on pages IV-7 and IV-8, it is encouraging to note that serious consideration has been given to nonstructural measures, particularly automated flood warning systems in California.
- 2022 Investigation into detailed nonstructural alternatives was not fully represented in the EIS.
- 2152 Planners should consult the extensive literature providing guidance in identifying and formulating nonstructural measures to reduce flood damage. The report uses the incorrect term "flood control".
- 1955 You should look into nonstructural solutions such as floodplain zoning.
- 562 Strengthening existing structures may be more ecologically and materially sound.
- 74 Why not implement the alternatives such as reoperation of Folsom, proper water management, conservation, and improvements to the levees.
- 707 Rather than dams, you should repair and increase the height of the levees and put smaller dams back in operation.
- 247 Why have alternatives that don't degrade precious riparian habitat not been considered? Please demonstrate why less costly modifications of existing facilities on Folsom Dam and retrofitting of levees is not more practical, cost effective, and environmentally sensitive.
- 1556 Why not go back to square one and build a series of smaller dams up the canyons. This will make the canyons safer and prevent catastrophes due to large earthquakes.
- 1683 Conservation and better development practices would be better to obtain the goals you seek.

**RESPONSE:** The 100-year floodplain boundary, established by the Federal Emergency Management Agency, was revised as a result of additional hydrologic data which was developed after the 1986 flood. This revision resulted in previously developed areas which

were once thought to be located outside of the floodplain to be now located within the floodplain. Approximately 390,000 people were found to live within the floodplain. Relocating all of this population and associated structures is neither socially acceptable nor economically feasible. A project to provide a high level of protection is needed to protect existing development, and it will be justified on that basis alone. Various nonstructural flood damage reduction resources were evaluated. They are described primarily in Appendix B. The primary conclusion was that these measures would be ineffective due to the great depths of flooding expected and impractical given the significant magnitude of existing residential, commercial, and industrial development in the floodplain. Additionally, several alternatives were analyzed which provided protection for only the existing development in Natomas. These alternatives were discarded as not economically feasible.

#### Reoperate Folsom Dam and Reservoir

- 711 A better option would be to reoperate Folsom and proper management.
- 805 Please explore nondam alternatives and alternative operating methods of existing facilities.
- 818 The degree of flood control necessary for Sacramento can be met with the existing Folsom Dam.
- 848 I propose you improve Folsom Dam's safety. That would be safer and less costly.
- 1116 One reason this report is inadequate is because it does not inform the people about the very easy, cheap and immediately achievable way of getting a large increase in flood protection be reoperating Folsom.
- 716 This plan is too big. Consider the use of facilities already in place and careful management to provide needed flood control.
- 1359 You should concentrate on current flood control devices.
- 1774 Can existing facilities on the American River be better used for flood control?

**RESPONSE:** Various alternatives were formulated including the permanent increase in seasonal flood control space in Folsom Reservoir. Only marginal increases in flood protection can be achieved at a fairly significant adverse impact on environmental and related resources. A high level of flood protection (minimum 200 years) can only be achieved through additional upstream storage

in the system. These alternatives and impacts are described in Appendix B, Main Report and EIS/EIR. Alternative plans including levee modifications, Folsom Reoperation, and related facilities are described there.

2008 Page 1-7, second paragraph. Revise the second sentence to discuss the need for levee and bank protection with the lowering of the Folsom Dam gates.

**RESPONSE:** The need for levee and bank protection is a function of increased flows in the lower American River as a result of higher releases from Folsom. The lowering of the Folsom Dam gates, by itself, does not necessitate bank and levee protection downstream.

2117 Page 8-51, Paragraph 4 - Additional discussion is needed in the last sentence. You should add "fall flows would be increased in many years to evacuate the reservoir in preparation for the flood season".

**RESPONSE:** Under the 150-year alternative Folsom flood control space (650,000 acre-feet) would have to be evacuated by the beginning of the flood season. Modified Folsom operations would be required to accomplish this. One means of accomplishing this would be to increase fall flows.

124 There are less expensive alternatives that will provide adequate flood control without destroying another beautiful recreation area.

2034 I support either the 100- or 150-year plans.

1837 The Corps should provide further data to document the need for the proposed high level of flood protection, as compared with most communities having the FEMA 100-year protection.

1454 The 400-year protection is extreme; it costs too much, and would destroy the canyon.

2027 I have not seen attention given to cheaper and more ecologically sound means of flood control improvement.

834 Flood protection for Sacramento could be provided more cheaply and effectively without filling the canyons.

945 I suggest we find other alternative, cost-effective projects that equal the true need and cost. Your proposal exceeds the need as well as understates the environmental cost.

RESPONSE: The appropriate level of flood protection for the Sacramento area is based upon economic, public health and safety, local acceptability criteria, and environmental factors. The nonfederal sponsor for this project has indicated that it feels that a minimum 200-year level of flood protection is appropriate considering all of these factors but primarily considering the significant flood depths which would be experienced and the reliance on high earthen levees for protection. The reasons behind this decision are described in Chapter VI of the Feasibility Report and in Appendix G, Section 404 Evaluation.

EPA has commented that "the county of Sacramento is proposing flood protection in the North Natomas area (Corps Public Notice 9000479) for a 100-year event."

Review of Public Notice 9000479 indicates that the subject of this Notice is the City of Sacramento's application for A404 permit to construct internal drainage facilities in the North Natomas area. This proposed project is not an attempt by the City to provide 100-year flood protection to the area but rather an upgrading to the existing North Natomas Community drainage system. The design criteria for this project is a 100-year storm which is different from the determination of a 100-year flood event under our flood protection evaluation. The 100-year storm is based on a precipitation analysis in the localized area.

- 63 Much cheaper alternatives are available to reduce flood threats including acquisition of natural floodplains or zoning to prevent building on them, levee improvements and setbacks, expansion of the American River Parkway and improvements to Folsom Dam.
- 752 Rather than a dam, you should focus on the operation and procedures at Folsom Reservoir, levee improvements and a clear designation of the floodplain.
- 575 Repair and update the existing dams and levees as an alternative to the Auburn Dam.
- 887 Consider an alternative that strengthens or improves the already existing man-made artifacts such as Folsom.
- 839 I urge that Folsom Dam be strengthened to do the job.
- 1151 Please examine the dams currently on the American River. I'm sure your expertise will reveal that they are sufficient to protect the people in the area.
- 869 Please look into strengthening the Folsom Dam and other means of flood control.

- 1838 The elimination of alternatives which raise Folsom Dam is not well justified. The revised DEIS should include a more thorough discussion and demonstrate the nonpracticability of these alternatives.
- 976 There seems no reason not to rework existing dams in the area or build a smaller, more affordable facility that would not eliminate the American River as it now exists.
- 1835 We recommend the Corps evaluate, as part of the alternative analysis, alternative reoperation schemes which may minimize potential downstream impacts. The lack of Corps jurisdiction over the operation of Folsom Reservoir doesn't obviate analysis of a full range of reop alternatives.
- 1361 You should upgrade existing flood protection facilities.
- 1466 Explore other ways of solving the problem, like repairing levees.
- 826 Other downstream projects and better basin management would further public interests more than your proposed white elephant.
- 1888 You should consider improving the levees before anything. It makes no sense to provide 400-year protection with a levee system held together by band-aid repairs. A less costly plan should be proceeded with first.
- 1582 Building up the levees and dredging the river seem more sensible ways to go.
- 870 There are other flood control measures that are more sensible and less costly.
- 1964 Expansion and widening of the American River Parkway is now considered to be politically and economically inconvenient.
- 1906 Better, more efficient solutions should be explored using existing resources.
- 2174 The above-named consequences suggest that any alternative to a dam should be accorded greater weight in the decision-making process. Reasonable flood control measures which meet federal flood control standards include setback levees, lowering the spillway and increasing flood storage at Folsom.
- 2126 The Corps should reshelve the Auburn Dam project and work toward better flood prediction and operations.
- 1097 I'd like to see a detailed analysis of exactly why building up the levee system and doing a better management policy wouldn't

serve the same purpose. This is the most expensive environmentally damaging way to provide flood control.

- 2157 We support flood control alternatives which will fulfill federal standards at less environmental and economic cost. We support Folsom reoperation, upstream reservoir operation, lowering the spillway, and improving levees. It would be consistent with the "no-net-loss" wetlands policy, too.
- 113 I believe Sacramento can get adequate flood protection from improved levees and a "dry dam" rather than an "expandable "dry dam" or massive Auburn Dam.
- 660 I believe there are better, less expensive and less harmful ways of attaining flood control, including the reoperation of Folsom, levee improvements and the expansion of the American River Parkway.
- 756 Levee improvements and less building expansion should be considered.
- 467 The flood danger protection can be achieved by less costly and environmentally damaging means including Folsom Reservoir modifications, levee augmentation, and wetlands expansion and protection.
- 572 If flood control is needed, strengthen existing levees, reoperate upstream reservoirs, prevent further development in the floodplain, and use greater water conservation.
- 337 Levee repairs and storage systems already in place could provide protection at less expense.
- 693 Money could be better spent on downstream levees. Proper levee planning and preventing housing development in the floodplain would help the flooding potential.
- 132 Please consider other projects such as levees or recreation areas instead of a dam.
- 694 Raising levees and lowering the spillway are two of the easiest and cheapest ways to protect Sacramento from flooding.
- 2074 I support the upgrading of levees, weir, and other below-Folsom improvements.
- 708 Far less could be spent on a dry dam with levee improvements and a beefed-up Folsom Dam.
- 1668 There are better ways, expand the capacity of existing dams.
- 421 You should rebuild the levees and not build a dam.

- 767 I support a full flood control project which would control downstream development of the floodplain, levee and existing dam improvements, and reevaluation of the current dam operation practices at Folsom.
- 785 I support flood control in the form of levee improvements and Folsom management improvements.
- 783 If additional flood protection is needed, strengthen downstream levees, operate over the dozen existing upstream dams for flood control and don't develop in the floodplain.
- 695 Improved control measures downstream could achieve necessary flood protection without a high dam in the American River canyon.
- 892 There are far more reasonable and economical answers, including levee improvements, re-engineering of existing facilities, forbidding floodplain development and American River Parkway expansion.
- 2074 I support the upgrading of levees, weir and other below-Folsom improvements.

**RESPONSE:** Discussions of levee raising, setback levees, channel modifications, reoperation of Folsom Reservoir, small upstream dam and related measures that were evaluated as means of providing flood control have been expanded in Chapter IV, "Plan Formulation Process and Flood Control Measures", and Appendix B to more fully describe their flood control capabilities and reasons for elimination.

Chapters on "Alternative Plans Considered" and "Plan Selection Process" fully evaluate alternatives incorporating levee improvements and reoperation of Folsom Dam. The plans incorporating these measures also have significant riparian and other environmental impacts. Environmental discussions within these two chapters of the Main Report have been expanded to give more detailed impact descriptions leading to the determination of the least environmentally damaging alternative and the reasons for recommending the Selected Plan.

2150 The study did not even estimate the cost of raising the existing Folsom Dam, one of the alternatives eliminated with little analysis.

**RESPONSE:** Additional information on raising Folsom Dam as an alternative measure and reasons for its elimination has been provided in Appendix B - Chapter II. This measure was eliminated primarily because of physical, engineering, and social constraints.

2102 Page 5, paragraph 3 - The first sentence should also indicate that a permanent increase in the seasonal flood control space in Folsom Reservoir would reduce the potential to provide benefits to fish and wildlife, recreation, and water quality.

RESPONSE: Recognition of fish, wildlife, recreation, and water quality impacts associated with alternatives involving reoperation of Folsom storage is found in appropriate chapters of the EIS/EIR, particularly Chapter 7. Since the purpose of this study was improving flood control, the potential to provide additional enhancements to fish and wildlife, recreation, and water quality from Folsom reoperation was not studied in this report.

2193 In the section on operations and maintenance considerations of the TSP, it is implied that flood control considerations at Folsom would differ with a dam at Auburn. How would it differ? Would the other uses of Folsom be advanced by the construction of Auburn? If so, what uses and by how much?

RESPONSE: Detailed descriptions of the operation inter-relationship between Folsom and a dam at the Auburn site under the Selected Plan are found in Appendix L, "Reservoir Regulation." Uses of Folsom Dam would be essentially the same as existing conditions.

#### Consider Least Costly Alternative

1323 Find alternatives that are cost effective and in the best interest of the people of California.

573 A better and less expensive way to provide flood control for Sacramento should be found.

200 Please go back to the drawing board and come up with a more cost-effective plan that will not subject the American River to the destruction that will result from your present plan.

48 The dam is too big and too expensive when other more reasonable flood control alternatives exist.

167 I believe reasonable flood control alternatives at a lesser cost will be just as effective.

1147 A smaller dam would be adequate and save money.



516 I recommend an alternative that will allow canyons to remain in their purest state for future generations.

9 I think the idea of spending that kind of money on this kind of project is an example of a skew in values. The Corps' money and efforts are better spent in other, less ultimately damaging, ways.

592 With runaway burgeoning population, to lose a relatively inexpensive retreat as the American River for our people is poor planning.

810 Your proposal is too big and too expensive. There are more reasonable alternatives and they are just as effective.

597 Alternative flood control alternatives are available at much less cost.

1511 There are less costly alternatives.

1440 There are lower cost alternatives and they should be looked at further.

665 There are reasonable alternatives which offer protection at less cost.

**RESPONSE:** The Plan Formulation Chapter of the Main Report (V-1) and Appendix B describe a host of alternative plans. Several are less costly than the Selected Plan. However, the plans that provide the greatest net economic return for funds invested provide the highest levels of flood protection. This is primarily due to the significant extent of flood damages prevented. In other words, even though several plans have a lower "first cost", they are not nearly as cost effective over time as the Selected Plan and would result in continuing damages from flood events over the economic life of the project.

#### General Comments on Plan Formulation

870 There are other flood control measures that are more sensible and less costly.

175 There are a lot of things that could be done before building a dam.

681 The dam would be inefficient because adequate flood protection exists within Folsom Dam.

72 What nondam alternatives have been truly considered?

176 Alternatives to building a flood control dam should be investigated.

452 Better and cheaper alternatives exist including several mentioned in your document. That is why I oppose your plan.

715 I agree we need flood control and water preservation but a dam does not sound like a good solution.

25 It seems to me we already have enough dams in this country. I oppose the project intended to dam the Middle Fork of the American River.

156 Other methods of flood control should be explored.

98 Alternative flood control measures should be used.

408 Alternatives which will provide adequate flood control without a dam have not been given enough consideration.

598 Better solutions to the flood control problem can be found.

294 Far better flood control alternatives to the dam exist but have not been given serious consideration.

209 I believe alternative methods of flood control are available.

34 I strongly urge the Corps to reconsider the feasibility of other flood control alternatives rather than eliminate the value of the North and Middle Forks of the American River.

171 Other alternatives to the perceived flood threat should be explored and implemented before a dam is built.

133 Please consider alternatives to the dam so we can continue to enjoy our rivers.

144 The alternatives are numerous; wouldn't a less costly means which is not land damaging be wise?

1635 The claim that this option is the only alternative for flood control is a complete fallacy. Other options have not been thoroughly discussed.

336 There are other proven and well-known options for flood control. Stop further degradation of citizen's environment for the profit of special interest.

685 You need to explore other alternatives to the dam proposal.

1173 The EIS is inadequate because it fails to consider all the alternatives.

- 134 While it is necessary to protect the Sacramento population, other approaches to flood control are feasible and merit further investigation.
- 204 You could find an alternative beneficial to everyone.
- 1282 There are other alternatives to the problem. Explore these cheaper and equally effective alternatives rather than this destructive dam.
- 916 This is not a feasible solution for flood control.
- 193 My father, a civil engineer, says this dam will not work. He said no, I say no, give up.
- 1099 Your feasibility study is incomplete, occasionally inaccurate and a quick federal bureaucratic whitewash.
- 14 It is absurd to plan 400 years in the future, assuming this is possible. The national policy on flood protection seems to recognize this.
- 940 If the canyons have to be flooded, so be it, but please investigate all other noncanyon flooding alternatives first.
- 1834 The Corps hasn't persuasively demonstrated that eliminated flood control measures aren't practicable or feasible and needs to do so in the revised EIS.
- 1656 Alternatives to the project were dismissed for unacceptable reasons.
- 2150 The study did not formulate and evaluate other reasonable alternatives with the same level of effort and advocacy that it expended on the dry dam alternative.
- 1964 The study fails to adequately analyze alternatives to the proposed plan.
- 2062 We urge you to withdraw the draft EIS, do the job right, and publish a new EIS.
- 2122 A number of alternatives were not addressed. Many of those described seem to need less work from the Corps than those chosen.
- 2011 The selection of alternatives chosen to study in depth in the subject document does not adequately represent the feasible flood control alternatives.
- 2150 The National Environmental Policy Act directs federal agencies to include alternatives to the proposed action in their

environmental statements. The study quickly eliminates most measures that did not include a dam at Auburn. It even eliminated from final consideration a less costly dam about a mile from the Bureau of Reclamation's Auburn Dam.

- 1965 The Corps would have the public and the decision-makers believe there are no alternatives that provide high levels of protection without heavy impacts, or they have gone to a great deal of effort to hide them in a confusing muddle of alternatives that were tossed out early in the process; none was justified in the EIS.
- 1183 The environmental documentation is clearly inadequate and could easily be challenged and delay project completion.
- 833 The natural resources of the river should not be sacrificed without careful consideration of all alternatives.
- 2014 Reasonable alternatives that were previously identified and that are less environmentally damaging should be analyzed in detail. This, along with corrections, should be included in a revised and recirculated DEIS/DEIR.
- 1117 Alternatives were discarded for no good reason. The alternatives selected to be displayed in the document were chosen to make the dam alternative look desirable and other alternatives undesirable.
- 2005 We feel your NED analysis was skewed in favor of larger projects, assuring that they came out best.
- 2153 The study used several assumptions that slightly bias the benefits of the recommended plan. For factors where we have knowledge of the facts, we find a strong bias for accepting assumptions that support the dry dam and discredit other alternatives. A restudy with the opposite bias could very well develop a different preferred alternative.
- 1116 This study began with a preconceived notion to build the highest dam possible and the study itself was done to justify that preconceived notion.
- 1964 The alternatives for display were apparently selected with the expectation that their strengths and weaknesses would guide opinion toward a dam project of sufficient size to warrant continued Corps involvement in planning and construction.
- 2062 A number of environmental concerns, political problems, and economic issues could prevent any dam from being included as part of the solution to Sacramento's flooding problem. The EIS should include complete analysis of what Sacramento can do

to relieve the problem without construction of a dam and at what increments of protection with dams of various sizes.

2263 We feel the Corps has been predisposed to some sort of a dam at Auburn. That feeling is repeatedly underscored by the inadequacies of the DEIS; its misguided assumptions; and by its willingness to overlook a variety of alternatives that could provide Sacramento with additional flood protection at a lower cost of both the environment and our tax bills. The DEIS is over a thousand pages of "make-work" planning rather than realistic flood control information.

2258 The selection of alternatives is skewed and does not promote informed decision-making.

2264 We are not convinced that the public was given a fair set of alternatives to choose from. The document steers a reader toward a structure at the Auburn Dam site. Why aren't levee setbacks and parkway expansion given the amount of analysis that other alternatives were given?

2021 If your desired result was to have a dam constructed on the lower American River, then the acceptance of the 200-year or better return period could not have been selected as a better design criteria to achieve that objective.

1503 The capability of expanding this with such a high dam puts the upstream recreation at risk. This is unacceptable. Reasonable flood control measures should be considered.

**RESPONSE:** Chapter IV, "Potential Flood Control Measures", and Chapter V, "Alternative Plans Considered", and Appendix B, have been expanded to more clearly describe why alternatives not including a flood detention dam at the Auburn site are not the most viable methods of flood control. In formulating alternatives, a wide range of measures were considered. For the main stem American River, 13 different measures were considered for development into flood control plans. Of these 13 measures, 11 did not include the construction of new detention storage in the upper canyon. Six of the 15 plans developed to provide protection levels less than the 200-year protection level did not include the use of new upstream detention capacity at the Auburn or any other site. In order to provide flood protection levels from a 200-year frequency or greater flood, additional flood detention capacity is required upstream. In formulating alternative plans providing 200-year or greater protection, measures were combined in many ways to evaluate the viability of plans which minimized upstream storage. Each of these alternatives was evaluated on environmental considerations to determine the least environmentally damaging alternative, and also on economic, public health and safety, and acceptability criteria to determine the Selected Plan.

1929 On your project schedule you have expenditures for engineering and design for the Natomas area beginning at the same time as the report goes to Congress. It will be 50 percent complete when the final approval is received. Considering the tremendous cost, shouldn't this phase await final Congressional approval before these expenditures are incurred?

**RESPONSE:** As described in the summary of the Main Report, under the section Flood Problems, the Sacramento area will be subject to more stringent FEMA restrictions in 1992 unless adequate progress is demonstrated in implementing appropriate flood protection measures. Also, the significant public safety issue because of high flood depths in Natomas has created a priority for local government to lower this flood threat. In order to assure adequate progress in implementation of the appropriate flood protection facilities and to address the public safety issue, design activities related to the Natomas features will be carried out concurrently with the authorization process. These activities, including design and construction of the Natomas features, are proposed to be carried out by SAFCA in advance of the federal project's proposed schedule.

2078 Page M-6-4 of Appendix omits important statistics in regard to other roller-compacted concrete dams and the proposed dam. Information is needed regarding other dams of this type, their width and thickness when over 250 feet in height.

**RESPONSE:** Specific design data regarding other roller-compacted concrete gravity dams has not been included in discussions of Appendix M since dam design specifications apply only to their specific construction sites and are not directly comparable.

2010 Please consult with the County of Sacramento and the American River Parkway Foundation on their current plans for the acquisition of the Uruttia property.

**RESPONSE:** The Corps has worked with the County of Sacramento and others regarding all features of the proposed recreation facilities. Discussions of the Uruttia property can be found in the Recreation Chapter of the EIS/EIR and in the Recreation Appendix.

1660 Table VIII-1 is incorrect. It does not include projected water use by San Joaquin County.

**RESPONSE:** Based upon the Congressional feasibility study authorization projected water use only within the American River Basin was evaluated.

2112 Prior to dismissing the cross-levee alternative, a thorough economic evaluation should be done comparing the overflow/flood retention basin concept and its potential beneficial values with the full Natomas Protection Plan.

1955 I also recommend a Natomas Cross Levee and open space reserve in northern portion of basin be reevaluated as an alternative. Adequate reasons for rejecting this alternative were not given. It doesn't substantiate a prohibitive cost.

2111 Page 3-14, paragraph 6 - More detailed explanation is needed to justify dismissing the cross levee alternatives. Cost and environmental impacts are claimed as criteria for dismissal, yet they are not compared in the supportive tables 3-2 and 3-3, or in the discussion.

1838 Cross levees and cross canals in Natomas were dropped from consideration due to potential severe construction impacts but your report contains inadequate information to support these conclusions.

1838 If cross levees in Natomas should result in increased localized flooding, the DEIS should describe potential measures to alleviate these impacts (i.e. pumping).

2111 The Cross Levee alternative would also reduce the need for expensive pumping systems to resolve internal drainage problems in the Natomas area. It could also help resolve flooding problems in Pleasant Grove and Sutter County to the north of the cross canal.

**RESPONSE:** In evaluating the various Natomas alternatives, the most cost-effective plan provides for full protection. Economic discussions of the Natomas alternatives can be found in Chapter VIII of the Main Report, Chapter 3 of the EIS/EIR, and in Appendix B. In addition, economic considerations related to social and aesthetic values of the open space in Natomas can be found in Appendix C, Economics. Cross levee options result in more significant problems than localized flooding. Up to 42,580 acres could be flooded up to a depth of fifteen feet. Pumping options are not practical under these conditions.

2111 In addition, if the cross levee alternative were selected and a natural overflow retention basin created, then it is logical that local sponsors would take necessary actions to establish the overflow basin and they would accept responsibility for

lands, easements, and rights of way acquisition, not the Federal Government.

**RESPONSE:** See above response. In addition, please see Appendix B.

1927 Why was the Corps' 100 year B alternative (1/3 Plan) from the April 1990 draft working paper not included in the DEIS as a viable alternative?

**RESPONSE:** This alternative was discussed and described as "The South Area Protection Plan" in Appendix B and FEIS Chapter 3. Reasons for its elimination are located there.

1850 Page 2-7 - Explain why the bottom width of the setback levee for the Fremont Weir is 140 feet and whether impacts to waters of the U.S. can be lessened with a smaller footprint.

**RESPONSE:** The Fremont Weir has been eliminated from the Selected Plan.

1895 El Dorado and Placer counties have not been fully and fairly informed of project impacts.

**RESPONSE:** Comment noted.

2100 In tables V-8, V-10, and V-12 under a column labeled "Mitigation" indicates reimbursement would be made for water and power supply lost, as appropriate. It is unclear whether these impacts have been added to the costs of the alternatives or deducted from benefits.

**RESPONSE:** Resource replacement for water supply and hydropower has been treated as a cost to the alternatives. Detailed resource replacement cost information is provided in the Economics Appendix.

2123 All the alternatives examined provide up to 400 year protection, except for modifications for Fremont Weir and Yolo Bypass, which are based on 100 year protection. We feel project features should be designed with uniform criteria.

**RESPONSE:** Features along the Fremont Weir and Yolo Bypass have been eliminated from the selected plan. Alternatives examined provide varying levels of flood protection ranging from the 100-year (FEMA) to the 400-year level. Each of these alternatives consists of features which provide a consistent levels of flood protection within the alternative.



2109 Page 3-2, paragraphs 4, 5 - There is an apparent conflict between the description of the no action alternative here and the discussion on dismissal of the Natomas Cross Levee alternatives on page 3-14, paragraph 6. Further explanation is needed.

RESPONSE: Discussions have been modified to further describe the no action alternative. Under the selected plan, protection of Natomas requires construction of the flood detention dam at the Auburn site as well as levee work in the immediate vicinity of Natomas. Under the no action plan, detention facilities at the Auburn site would not be constructed. Protection of Natomas without the Auburn detention dam would require much more significant work than proposed under the selected plan. Consequently, statements in the description of the no action plan indicate that development in the Natomas area would be severely restricted if there is no federal action taken. When discussing the Natomas cross levee alternatives a statement is made that local reclamation districts could likely do minimal work to provide protection to the northern portions of the basin. This assumes that a flood detention dam is in place at Auburn. With a detention dam at the Auburn site, minimal levee work would be required in Natomas to provide complete protection.

2123 It has been articulated in previous correspondence to the Corps of Engineers that Yolo County's position is that "hydraulic mitigation" is a project feature and, therefore, is to be financed and constructed with the project.

RESPONSE: A complete discussion of hydraulic mitigation features for the American River project can be found in Chapter VIII of the Main Report.

#### Consider Small Upstream Dams

486 My own preference to your plan is several small dams in conjunction with levee improvements. Even if the cost is the same, it would be less damaging environmentally.

1365 You can serve the people better if you instead build or expand smaller dams further up the American.

RESPONSE: The potential for several small upstream flood detention dams was considered (see Chapter IV, Appendix B and Chapter 10, plan formulation process and flood control measure in Main Report) but deleted from further consideration previously due to high cost, relative ineffectiveness, and high environmental damage associated

with developing a number of separate sites in lieu of a single facility.

Federal Standard for Flood Control

- 66 An improved system of levees, coupled with expansion of the Parkway, will meet the current federal standards for flood control.
- 768 Reasonable flood control which meets federal standards could be met without a dam.
- 47 There are other less expensive alternatives which would be just as effective in addressing flood control.
- 343 A cheaper and sufficiently protective dam could be made.
- 68 I believe there are reasonable cost-effective alternatives for flood control which will meet federal standards and consideration should be given to them.
- 239 Please consider alternatives that would meet federal standards without a dam and with less cost.
- 126 There are other flood control methods which meet federal standards at less cost.
- 52 There are reasonable flood control alternatives which meet federal standards without a dam.
- 53 We support other options of flood control which meet federal standards without a dam and with less cost.
- 1299 I support alternatives which meet federal standards without a dam.
- 909 Reasonable alternatives that meet federal standards exist. There seems to be little reason for this project to reach fruition.
- 624 We support other options of flood control which meet federal standards without a dam and with less cost.

**RESPONSE:** The current "federal criteria" applicable to water resource planning projects is contained in the Water Resources Council's principles and guidelines. The guidelines require selection of the alternatives which reasonably maximize the federal investment. The Selected Plan satisfies this guideline. Chapters V (alternative plans considered) and VI (plan selection process) of the Main Report, Appendix B and Chapter 2 of the EIS,

"Project Description and Rationale", section "Rationale for Recommendation of the Selected Plan", describe various factors associated with federal policies and their applicability to flood control projects. FEMA uses a 100-year criteria in regulating its National Flood Insurance Program. However, FEMA does not necessarily advocate its use as the most appropriate standard in the design of flood control structures since FEMA criteria are meant only as an actuarial standard for purposes of funding an insurance program and are not necessarily related to appropriate levels of flood protection.

693 During heavy rains, much of the flooding collects in gullies and creeks below Folsom Dam. A new dam would not help this flooding.

14 I note that the proposal to deal with the frequent flooding of Dry Creek in Rio Linda will provide the minimum 100-year protection, not the 400-year you propose for Sacramento.

RESPONSE: The Selected Plan is designed to control major flooding from the American and Sacramento Rivers. Flooding problems associated with interior drainage are not addressed by the recommended plan. Various interior drainage problems are under investigation by local governments and it is expected that these problems will be tackled by other local flood control projects. The Selected Plan has been revised to a locally preferred 200-year plan.

#### 400-Year Level of Protection is Too High

1111 400-year flood protection sets a dangerous precedent for the rest of the country as developers seek more developments with increased flood protection. Has the Corps considered this?

1150 A 400-year dam is too extreme.

1130 There are several alternatives that make more sense than your 400-year plan.

1132 The dam is too big.  
1543

1910 You have come up with the most massive river-killing, gold-plated boondoggle imaginable.

1786 You should build a smaller dam.

1801 If a dam must be built, then it should be smaller and  
1775 ungated.

1923 I disagree with the size of your solution. I urge the Corps  
to find less expensive, and less damaging flood control  
solutions.

1589 If alternatives fail, any dam you do build must be a smaller,  
ungated structure.

801 No dam is needed, but if one is built it must be a smaller,  
ungated structure that cannot be converted for water and power  
later on.

678 I suggest you build no dam at the Auburn site or only a small  
ungated dam similar to the coffer dam that washed out in 1986.

**RESPONSE:** The Selected Plan is now the 200-year alternative. The  
dam proposed under this alternative is smaller. The process for  
selecting the 200-year alternative is described in Chapter 2 of the  
EIS/EIR, "Project Description and Rationale", and in Chapter VI of  
the Feasibility Report.

To provide flood protection levels of 200-year or greater,  
additional upstream detention capability is required. An  
additional alternative has been evaluated which incorporates levee  
improvements on the lower American, modified Folsom storage, and  
lowering of Folsom spillway in conjunction with a detention dam at  
the Auburn site. This alternative, which is discussed in detail in  
response to comment No. 1785 in this Plan Formulation Section of  
the Comment/Response Appendix, minimizes the additional detention  
capacity required at the Auburn site needed to provide the 200-year  
level of flood protection. For system safety, outlet gates, to be  
used only in the event of flood control system emergency, have been  
included. Any dam can be converted to include other purposes. The  
Corps recognizes that additional Congressional authorization and  
environmental documentation will be required to convert the flood  
control only structure.

503 The dam is too large and too expensive. Restricting  
habitation in the floodplain is a better answer.

6 A small flood control dam or other alternatives such as buying  
flood-prone lands should definitely be considered.

**RESPONSE:** The 400-year plan is the best economic solution to  
protect against the flood problems identified. The economic  
Appendix discusses the economic optimization analysis. A full  
discussion of economic issues is contained in Chapters V and VI of  
the main report and in Appendix C, Economics.

491 A flood control alternative providing a facility which could serve as an emergency service can be provided instead.

**RESPONSE:** The Selected Plan providing the 200-year level includes a detention dam which acts as a flood control facility only. It will detain water only during periods of flooding and will release waters through the outlet works in an uncontrolled fashion. Emergency gates would be operated only in case of a downstream system emergency such as a levee break.

248 Is this 500-foot, expandable, gated, flood control dam just a political sellout to the "dam-at-all-cost" element? Isn't it a costly, unjustified compromise with severe future consequences?

**RESPONSE:** The Selected Plan has been changed to the 200-year alternative. This plan has been chosen because of its viability in relation to environmental, economic, public health and safety, and acceptability criteria. The Selected Plan has been determined to be the least environmentally damaging. This plan protects against the very severe consequences of flooding in the American River floodplain in the Sacramento area. Refer to Chapters V and VI in the Main Report for alternatives considered and plan selection criteria.

137 Your project would inundate 40 miles of the North and Middle Forks of the American River, ruining valuable free-flowing recreational waters.

169 This dam is too big and too expensive and would flood the upstream canyons.

**RESPONSE:** Inundation of the North and Middle Forks of the American River would only occur during rare flood periods and then for short duration to various extents depending on the magnitude of the flood event. It is unlikely that during the rare flood periods, recreational uses such as rafting or other outdoor activities will be occurring. Refer to Chapter VII of the Main Report, Chapter 7 of the EIS/EIR and Appendix L.

14 The storm you are seeking to protect us from could easily occur after the end of the 100-year project life and all the money would be wasted.

1879 400-year project with an assumed 100-year life?

RESPONSE: The "project life" of 100 years referenced in the report refers only to the timeframe used for economic analysis purposes. The actual life of the Selected Plan project would likely be in excess of the 100-year life used for economic comparisons and not been estimated. Referencing a project as a 400-year project does not imply that the life of the project is 400 years. The 400-year reference is to the level of protection which is provided by that alternative. For example, the 400-year alternative will protect against a flood that has a 1-in-400 chance of occurring in any particular year. The process used to determine the size of potential floods in the American River Basin is discussed in Appendix K, Hydrology.

44 You dismissed some alternatives by saying there was no identifiable local sponsor. I believe the federal government has the clout to enforce whatever flood control decision it makes.

65 I question the validity of your premise for rejecting nondam solutions as the State rejecting less than 200-year protection and financial participation.

RESPONSE: Federal law requires local cost sharing for water resource projects. If there is not a nonfederal sponsor for a flood control project, there cannot be any federal participation in that project. It is the goal of the Corps to identify viable solutions that have the potential to be implemented. Both the State and SAFCA (likely nonfederal sponsors) have endorsed a minimum 200-year level of protection for the Sacramento community from flows in the American River.

496 Flood control can be accomplished with a small dry dam which would avoid the consequences of a multipurpose dam.

RESPONSE: The Selected Plan is the 200-year flood protection level alternative. This plan includes a flood detention dam, a "dry dam", at the Auburn site. Impacts associated with this plan are much different than for a multipurpose dam.

354 I feel that sooner or later the dam will be used to permanently flood the river canyons.

1827 The 400-year alternative will lead to permanent inundation because levels of flood protection could be downgraded to 200-

year levels, allowing 350,000 acre-feet of water storage. This is unacceptable.

- 1913 The best impact you could have, the most constructive decision you could make, is deciding not to build an expandable dam, gated dam, let alone a multipurpose dam.
- 1834 The dam could be used for water storage without major modifications. Also, some features are compatible with detention but supportive of enhancements for conversion to storage use. This may lead to future proposals for expansion.
- 1778 The dam to be built should be a solidly open gated flood control only dam to insure no future administration would mismanage this protection for Sacramento.
- 1921 The flood control dam is too easily convertible to the multipurpose dam of old.
- 1207 This flood control dam will inevitably become a water supply facility and flood control will again become the issue and there will be a proposal for yet another dam.
- 1186 Politics have played a part in the development and selection of the TSP. The desire by some to eventually build a multipurpose dam has made it difficult for the Corps to properly select the best flood control plan.
- 1823 It isn't true that the TSP would be designed to neither advance nor hinder possible expansion for the following reasons: the gates; increased water demand from the indirect effects of build-out in Natomas; the ease of conversion over construction of a new dam.
- 1899 No more multipurpose dams should be built until all conservation efforts have been exhausted.
- 1182 The Corps and politicians who support this project have bowed to the pressure from local developers who believe this dam will supply them with water.
- 1833 The construction of any dam at the proposed site is likely to influence the selection of this site for a hydropower and water supply facility.
- 351 The dam's features of expandability and gates imply future permanent flooding, which would be claimed as justified once the technology was in place.
- 1969 On page 1-5 of the DEIS, it is stated that the facility "would be designed so as to neither advance nor impede possible future expansion of the facility for water and power". This

conclusion is false: (1) the facility is gated, (2) the facility could be expanded and retrofitted to function as a multipurpose dam with less effort and money than building a new dam.

1209 Your plans attempt to incrementally establish a multipurpose dam in the canyon. The baseline for scenic values is the scarred B.O.R. site. Then the baseline for the multipurpose dam will be the "existing" TSP dam. Each step of degradation can, therefore, be used as justification for the next step.

RESPONSE: Please refer to previous comment responses under the multipurpose category. The Selected Plan is not a multipurpose facility and will provide no additional water supplies. The Selected Plan is revised now to the 200-year alternative. The Corps recognizes that conversion of the Selected Plan to a multipurpose facility would require additional Congressional authorization and environmental documentation. Therefore, the Selected Plan does not enhance the potential for a multipurpose project. The proposed gates on the Selected Plan are for emergency use only and are discussed in more detail in Appendix L and Chapter VIII of the Main Report. These gates, as proposed, would be unsatisfactory for routine operation for water storage purposes. Future development in the Natomas area that may result as a consequence of providing flood protection would likely occur under any of the alternatives considered, including those which do not include construction of a dam. In the event that additional flood protection is not provided, it is likely that future development will continue to occur in other areas of Sacramento outside of the 100-year floodplain. Consequently, increased water demands are not expected to be influenced by the flood control alternative that is implemented. The Selected Plan does not enhance the potential for a multipurpose project.

304 It is odd that we haven't made significant improvements to our existing facilities prior to or in conjunction with efforts to study and build a dam.

RESPONSE: Damage to levees along the American River and Sacramento River at Sacramento as a result of the 1986 flood has been repaired under authority which is separate from this investigation. Approximately 32 miles of levees are currently being restored to design conditions also under separate authority. Provision of significant improvements to the existing flood control system, or portions of that flood control system, is included in nearly all alternatives described and evaluated in Chapter V. Geotechnical information on the existing levees is found in Appendix M.



686 Need for the dam is extremely questionable.

2183 EDF has previously submitted extensive comments critical of the Corps' analysis of flood risk and alternative options. The Corps continues to advocate a costly and environmentally unsound approach to flood damage reduction, which will delay implementation of more readily available alternatives.

**RESPONSE:** Additional upstream detention is required in order to provide flood protection levels of 200 years or greater. This is documented through hydrological analysis provided in Appendices K and L.

307 Please provide workshops where alternatives can be discussed.

**RESPONSE:** Fourteen public workshops and three public hearings were provided during the public review period which extended from April 5, 1991 through June 14, 1991.

38 Why not put check or control dams on the streams coming from the mountains west of Interstate 5? They were causing the flooding in 1986, not the American River.

**RESPONSE:** Flooding problems resulting from streams originating in mountains west of Interstate 5 are being investigated in separate studies, independent of the American River Watershed Investigation. Most of the flood threat to Sacramento during 1986 was a result of high Sacramento River stages concurrent with maximum releases from Folsom which were the result of record flows in the American River Basin.

693 I propose a miniature Yolo Bypass on the east side from below Folsom Dam to an outlet downstream on the Sacramento River.

**RESPONSE:** An alternative incorporating setback levees on the American River was considered and is described in Chapter IV under the section Main Stem American River - Measures Dropped from Further Study. The analysis which led to its deletion (due to extensive existing development which is very expensive to relocate) is also described in Chapter IV and in Appendix B, Plan Formulation. A new and separate bypass for the American River below Folsom Dam would be infeasible for the same reason.

512 You should study and build a more effective system of flood prediction and coordinate that system with existing dams and repair existing levees.

**RESPONSE:** Flood forecasting improvements were considered and are described in Chapter IV, Main Stem American River - Measures Dropped from Further Study. Use of existing dams and levee repairs were also addressed in Chapter IV and in Appendix B.

44 Throughout your analysis, you have disregarded the economic value of wildlife habitat except as required by the Endangered Species Act and other laws. Even then, you have sought to ignore it and do the minimum.

**RESPONSE:** Wildlife habitat has not been ignored in our analysis. We have worked closely with federal and State fish and wildlife agencies on fish and wildlife habitat values and mitigation needs. It is true that we seek the least costly way of mitigation for values to be lost and we must insure that such costs are justifiable. Additional information regarding the value of wildlife habitat is included in Chapters V and VI, under sections dealing with environmental evaluations of the various alternatives.

1838 A Section 404 permit can only be issued for the least damaging practicable alternative which provides a reasonable level of flood protection. The Corps should document whether there are less environmentally damaging alternatives, even if they may not be supported by the local sponsor or satisfy NED requirements.

**RESPONSE:** Description of the environmental analyses leading to the identification of the least environmentally damaging alternative has been included in Chapters V and VI of the Main Report. Additional discussion of this topic is found in Appendix G.

821 After spending time on the American River, I found your plans to dam it to be obscene.

**RESPONSE:** The unmitigated impacts associated with the 200-year alternative are not expected to be substantial, as discussed in Appendix Q.

1855 Appendix G, page G-30. EPA believes the cumulative effect analysis is too narrow. Future development within the Natomas area should be addressed.

**RESPONSE:** Chapter 18, Growth-Inducing Impacts, of the EIS/EIR has been expanded to provide more detail about potential cumulative impacts associated with development within the Natomas area. Appendix E, Land Use, has also been expanded to include more detail.

1839 Appendix M (page M-5-35) states that powerplants at a future dam at mile 19.0 or 19.2 could be inundated by Folsom Reservoir during a flood. The revised DEIS should address whether those potential sites were rejected for that reason. If so, that isn't consistent with the proposal for a flood control only facility.

**RESPONSE:** The River Mile 20.1 site was selected in part because of the time and expense saved by utilizing the existing information that had been completed for this site during previous studies, since the site compared on an equal basis with other sites from a technical viewpoint. Inundation of potential future powerplants at alternative damsites at River Miles 19.0 and 19.2 would occur and is stated elsewhere in Appendix M as a factual statement of an additional disadvantage of those other sites. This fact was considered but not a primary factor in deleting those other sites from further consideration.

1180 Everyone involved in flood control in February 1986 agrees that 200-year protection is a minimum and 400-year is a goal we should achieve.

**RESPONSE:** The Selected Plan is the 200-year alternative. The reasons for selecting this plan in lieu of the 400-year NED plan are found in Chapter VI, Plan Selection Process, of the Main Report and in Chapter 2, Project Description and Rationale, of the EIS/EIR.

1176 History indicates that we don't always have the answers and we don't know exactly what we are doing. The taxpayers are paying millions to correct mistakes on the Kissimmee River in Florida, the Gulf coast wetlands, and the O'Neil Forebay Dam. How do we know this document has all the answers?

**RESPONSE:** It is true that as we gain additional historic data on any watershed, estimates and hydrologic calculations can be made

with more accuracy; however, the potential flood risk documented by the historic data available currently does not allow us the convenience of waiting to obtain that data. There are uncertainties in any investigation based upon hydrological, environmental, and engineering variables given current levels of knowledge. However, we have quantified the flood control problem and developed solutions to protect the life and property within the American River floodplain based upon the best available information.

1016 I don't feel we need any extra water, there is no good in endangering the environment.

RESPONSE: The Corps' proposed project does not include any permanent storage of floodwater for water supply. Water is only stored behind the dam for a short period during a flood event and is immediately released. Consequently, there will be no environmental impacts associated with permanent water storage.

1914 I think this document will cost many more millions of dollars and it is totally inadequate and unreliable.

RESPONSE: This document was prepared following prescribed principles and guidelines based upon the best available data with each alternative considered from an economic, environmental, and acceptability standpoint.

1896 If NED is based on 400-year level of flood protection, then the identified impacts should include 400-year flood impacts.

RESPONSE: The Selected Plan has been changed to the 200-year alternative. Impacts of a 200-year flood under the no-action scenario, and under the various alternative levels of protection, have been described and considered. Additional information has been added to the environmental impacts discussion sections of Chapters V and VI in the Main Report.

1823 In the DEIS, conclusive, unsubstantiated comments are common, impacts are inadequately evaluated, and mitigation is unspecified or underdeveloped. This leaves the public without enough information to intelligently review flood control problems.

1957 In general, the alternatives analysis, selection of the TSP, impacts analysis, and proposed mitigation are incomplete and don't accurately reflect the broader array of flood control options.

**RESPONSE:** Additional information has been added throughout the EIS/EIR to more clearly explain impacts and mitigation. In addition, plan formulation sections of the Main Report (see Chapters V and VI) have been expanded to more fully discuss the measures considered and the rationale for screening of alternatives, identification of the least environmentally damaging alternative, and the process which led to recommendation of the Selected Plan. Refer to Chapters V, VI, and VII in the Main Report and to the various sections in the EIS/EIR addressing impacts and mitigation.

1832 It is critical that the Corps and FWS agree on inundation impacts and no-action conditions on the lower American River. If disagreements continue on impacts and mitigation, the revised DEIS should clearly illustrate those differences.

1927 How is the dispute between the FWS and the Corps going to be resolved with regard to this project?

**RESPONSE:** Chapter 7 of the EIS (Fish, Vegetation, and Wildlife) discusses the methodologies and approaches to impact analysis and mitigation in the project area by the Fish and Wildlife Service and by the Corps' consultant. The ongoing intra-agency coordination which has attempted to arrive at consensus on these impacts and the required mitigation is discussed in the referenced chapter.

1849 Main Report, page IV-5. The report states that the filling of the dry dam by a 400-year event would last approximately 12 days. This is not consistent with other statements in the DEIS.

**RESPONSE:** The text has been revised to be consistent with information presented elsewhere in the report. The inundation periods presented in Chapter 7 of the EIS are correct.

1194 Our main concern is that arguments over Auburn Dam are holding up repairs of our levees.

**RESPONSE:** One of the project's nonfederal sponsors, SAFCA, is proceeding with advance engineering activities on proposed levee improvements around the Natomas Basin so these facilities can

proceed independently from the proposed Auburn Dam and in advance of the federal project schedule. By itself, completion of this levee work will not provide 100-year FEMA levels of flood protection. Additional control of the American River is required to marginally increase the capability to pass outflows from Folsom through the lower American.

1191 Please support flood control measures for Sacramento.

1868 We would like to support the proposed project but we cannot approve or support the present draft report.

**RESPONSE:** In response to the comments received, many sections of the Main Report, the EIS/EIR, and the Appendices have been revised or expanded.

1199 Since the report's premise is that the Auburn multipurpose dam will never be built, the dry dam is just a pile of rubble.

1138 We need a dam that will hold water, not a holey dam.

1200 We need to join together on common ground and have Congress fully preauthorize a stageable dam designed with a full reservoir in mind.

1875 We object to the assumption stated in your Executive Summary that the "multipurpose Auburn Dam, as previously authorized, will not be constructed". This statement precludes the possibility of full analysis of a multipurpose alternative as part of your DEIS.

1830 We seek legally binding assurances in the EIS and ROD that the Corps considers conversion and structural or operational modification of the dry dam to be major changes requiring Congressional authorization and an EIS.

1197 We support a flood control dam at Auburn which can be expanded into a multipurpose dam.

1198 We support needed flood control for Sacramento but not a billion dollar project which some see as the first step towards a multipurpose river-killing dam.

861 I believe you are being too short-sighted or your decision has been influenced by groups who are against a multipurpose dam.

- 1197 Nothing should interfere with expansion into a multipurpose dam - not design, legislation, or designation of federal lands behind the dam.
- 1867 The study is apparently flawed by the total failure to address as an alternative the multipurpose dam.
- 1870 We believe there is sufficient documentation on the existing authorized multipurpose project to support its inclusion under your alternative analysis.
- 1206 I don't believe that the dam will remain dry or that the environment behind it will be undisturbed environmentally.
- 2061 Since, lacking institutional protection of the canyons, the construction of a gated expandable dam would be the first step of a chain of projects leading to canyon destruction, comprehensive analysis of the impacts is required.
- 2150 We are concerned that the selection of the Auburn site for the recommended alternative and extensive discussion of purposes other than flood damage reduction in the draft report indicates that the dry dam will provide a base for the discredited Auburn project.
- 2072 As a compromise, we will endorse the construction of a dry dam to provide immediate flood protection for Sacramento, under the condition that it be expandable and completed as a multipurpose dam.
- 1870 The selected plan has not been developed in accordance with the applicable national environmental statute in that the DEIS only discusses construction of a multipurpose dam as a possible future cumulative impact, not as an alternative.

**RESPONSE:** Please refer to previous comments and responses for the multipurpose project in previous sections of this Appendix. The Selected Plan has been formulated to neither advance nor preclude a multipurpose facility in the American River canyon. Additional discussions of the authorized multipurpose Auburn Dam can be found in Chapter VIII, Special Topics, of the Main Report or in Chapter 17, Cumulative Impacts, of the EIS/EIR. Included in the Main Report (Chapter VIII - Special Topics - Water Resource Opportunities - Multipurpose Auburn Dam Project) are statements confirming that the Corps considers conversion, structural, or operational modifications to the dry dam a significant change requiring additional Congressional authorization and environmental documentation. A Record of Decision (ROD) for this project has not been completed; however, it is anticipated that similar statements will probably be included in the ROD.

Given the limitations imposed upon the investigation by the Congressional authorization, this investigation did not pursue the full analysis required to allow consideration of a multipurpose alternative.

1835 The Corps appears to have made multiple conservative assumptions which collectively eliminate all alternatives available for 200-year protection except for detention dams. We urge reevaluation of those assumptions in light of the basic project purpose of flood control.

2124 It appears the Corps has way overestimated the need for flood control and has partially hidden this by not including tables, figures, or appendices with any raw data or even the analyzed results.

**RESPONSE:** As a result of the comments received, a review of all assumptions used in this investigation, including those used in identification of the need for flood control, encompassing the many engineering and environmental considerations, has been carried out. This has resulted in expansion of many sections of the Main Report, EIS/EIR, and Appendices. This review has led to the elimination of several features of the Selected Plan but does not affect the overall analysis or selection of the 200-year alternative. Of particular significance, refined information regarding hydrology, reservoir operation, hydraulic operations, aggregate borrow sources, cumulative impacts, fish and wildlife impacts, and plan formulation has been included in the documents. Refer to Chapters III and IV of the Main Report and Appendices B, Plan Formulation, and K, Hydrology.

1848 The impact analysis often combines alternatives and impacts when presenting information in tables. Also, impacts are only qualitative and the magnitude of the differences for each alternative and supporting data is not provided.

**RESPONSE:** Environmental impact evaluations within the Main Report (Chapters V and VI), and within the EIS/EIR (many locations throughout) have been clarified where possible. In some cases, differences in environmental impacts between alternatives are not easily quantified with existing data, or with reasonable additional investigation. Also, in some cases differences are so incrementally small that it is impossible to accurately quantify them. Consequently, there remain areas within the analysis where alternatives are combined and impacts are evaluated only on a qualitative basis.



1901 The input process was far too short. The calendar rushes those of us who disagree with your recommendations.

1114 We require more time for public comment since the Corps did not release the appendices until 2 to 3 weeks after the Main Report was released.

1905 The comment period should be extended.

1205 We need to move ahead as quickly as we can with flood control on the American River.

1190 We need flood protection as soon as possible. Without it, Sacramento homeowners face enormous increases in flood insurance by 1992 and low-income families will be hardest hit. Home affordability will be further eroded.

1195 Let's not do anything to delay this process so we get into the 1992 bill.

2149 At the Auburn public hearing on May 22, 1991 a handout identified the end of the public comment period as June 14, 1991. How is the public to review and comment on the mitigation plan before the final EIS/EIR? No decision should be made until after the information is subject to public review and comment.

2073 Review time for your document and supporting documents was woefully inadequate.

2060 The comment period was not long enough to allow a volunteer group time to make a comprehensive analysis of the EIS. However, our review reveals that the EIS is inadequate to assist the public and decision-makers to select a feasible and acceptable flood control solution for Sacramento.

2097 We note that the period in which to comment on the Watershed Investigation and draft EIR/EIS is uncommonly short.

2014 Our ability to thoroughly analyze the report was hampered by the short amount of time the documents were available for public review. When an additional copy was requested, only an Executive Summary was sent.

1906 The comment period should be extended.

**RESPONSE:** The draft Feasibility Report and EIS/EIR was distributed for public review on April 5, 1991. Appendices to the draft Main Report and draft EIS/EIR were available to the public the week of April 22, 1991. The comment period officially ended June 14, 1991. This allowed a 69-day review period for the Main Report and draft EIS/EIR. Release of the appendices the week of April 22, 1991

allowed for the legally required 45-day review period for these documents. During this time period, 14 public workshops were carried out to facilitate public review of the documents. In addition, during this time period, several environmental organizations were invited to attend meetings with the Corps to facilitate review. Also during this time period, an additional special presentation was given to the Environmental Council of Sacramento to facilitate its review.

Additional public review periods exist within the Corps' Washington level review process which occurs subsequent to revision of the draft Feasibility Report and draft EIS/EIR incorporating comments received during the April 5, 1991 through June 14, 1991 review period. This review process includes a 13-week public review period which begins shortly after the issuance of the Corps' Division Engineer's Notice initiating the Washington level review process of the proposed final Feasibility Report and EIS/EIR.

The Sacramento area is faced with a significant flood threat. It is imperative that actions move as fast as possible to assure timely implementation of appropriate flood control measures to protect the people and property of the Sacramento area floodplain. Several requests for an extended public review period of the draft Feasibility Report and DEIS/EIR beyond June 14, 1991 had to be balanced against this pressing need for flood protection. Any significant delay in the schedule has the potential of making 1992 Congressional authorization infeasible and delaying such authorization until 1994.

1862 We have reviewed your DEIS for potential adverse impacts on human health. We believe potential impacts have been adequately discussed.

RESPONSE: Comment noted.

1117 Why should the public have confidence in an agency that first defines the hydrology, selects the hydrological model, calculates the flood threat, and then builds the project, particularly when they were quiet about the flood threat prior to 1986.

1117 As far as I know, the flood threat before 1986 is the same as it is today.

2022 Insufficient data was presented in the EIS to evaluate the impact of the February 1986 event on the available period of record.

RESPONSE: In response to comments received, extensive review of hydrological assumptions has been carried out. Several sensitivity studies have been accomplished to review various hydrologic assumptions. The results of these analyses have been included in the Hydrology and Reservoir Operation Appendices (K and L). Hydrologic analyses are based on historic data projected to simulate future conditions. The storm of 1986 and hydrologic information accumulated since the last detailed analysis on the American River have shown the flood risk is greater than previously thought. A small level of uncertainty exists in any estimation of hydrologic conditions; however, long-accepted methodologies for the determination of hydrological conditions have been used to minimize this uncertainty.

1905 This proposal and any dam at Auburn is illogical because it is inefficient use of the existing resources. (The existing resources are the existing levee system and the Folsom Dam.)

RESPONSE: We do not concur. The Selected Plan will continue to use the existing levee system and Folsom Dam to the full extent of their existing capabilities. In addition, upgrading of the existing levee system and Folsom Dam for improved flood control has been examined in many alternatives. The analysis of these alternatives from an environmental, economic, public health and safety, and acceptability criteria can be found in Chapters V and VI of the main Feasibility Report.

1911 We don't see the data that led you to conclude how big the 400-year flood is going to be.

RESPONSE: Hydrological data, assumptions, and methodologies for computing the size of the 400-year flood event can be found in Appendix K, Hydrology. The Selected Plan has been revised to be the 200-year protection alternative.

1829 The DEIS and Feasibility Report don't fully inform the public and decision-makers of the potential impacts to the environment and the measures the Corps and local sponsors would implement to minimize those impacts. Rated "inadequate information".

RESPONSE: The Corps feels the draft Feasibility Report/EIS/EIR provided a sufficient description of impacts and mitigation measures necessary for the decisionmaker to make a final recommendation. However, the draft Feasibility Report/EIS/EIR has been expanded in many places to give more detailed clear

explanations of environmental impacts and proposed mitigation features. With this expanded discussion, the Corps believes that a clearer report has been prepared for the public and for the decision-makers.

1903 Corps should wait and incorporate Folsom reoperation report with the American River Watershed Investigation.

1823 The Folsom Dam reoperation DEIS should have been coordinated with the release of your report. Will it be released soon enough for public review before your comment period is over? If not, then the full impacts of your report cannot be adequately addressed.

1114 The Folsom Reoperation Study was used in your analysis but will not be available to the public until after you make your decision with this project.

1831 We question that the EIS contains adequate information on permanent Folsom reoperation when the analysis for a "short" 10-year reoperation period has not been completed.

1840 EPA is concerned with potential impacts of temporary or permanent reoperation of Folsom, on operation of other Central Valley reservoirs, on compliance with water quality standards and protection of beneficial uses of the Sacramento River system, including the American River.

1829 The lack of information on potential environmental impacts of interim flood protection is a significant omission, including additive, synergistic, and cumulative impacts.

1106 This report puts the cart before the horse with respect to the reoperation study for Folsom Dam. I would first determine all available options rather than pushing this particular option.

1969 Folsom Reoperation study, cited in the EIS/EIR and dated April '91 had not been released for public review, but is an important source of information for decision-makers.

**RESPONSE:** Folsom reoperation, as an interim measure to assist Sacramento by slightly increasing the level of flood protection before the Selected Plan becomes operational, may or may not be authorized and implemented. This is a decision independent of the Selected Plan. Separate reports and environmental documents and public coordination will assist in determining if this interim protection should be provided. This action would also consider and include appropriate environmental impact analysis and mitigation needs. There are potential cumulative impacts associated with implementing Folsom reoperation in conjunction with the Auburn

Flood Control Project. Therefore, more detailed information has been incorporated into the Feasibility Report (Chapters V and VI, sections related to environmental evaluations leading to plan selection) and the EIS/EIR (Cumulative Impacts Chapter 17) regarding Folsom reoperation impacts. More detailed information is also provided in this comment response appendix under the Folsom Reoperation category. With these additions, potential environmental effects of interim flood protection through Folsom reoperation, as well as permanent reoperation alternatives, are fully considered. These impact evaluations include discussions of additive, synergistic, and cumulative impacts.

1887 The levee portion of your plan is very well covered. Both dams and levees will be needed in the future.

1094 The most dangerous dam on the American River is the one that doesn't exist yet.

**RESPONSE:** The Selected Plan would provide 200-year flood protection through a detention dam above Folsom Dam and levee improvement around Natomas.

1206 The railroad tracks just east of the Natomas East Main Drain need to be raised or floodwater will break through at the point as it did in 1986.

**RESPONSE:** The railroad embankment just east of the NEMDC is not designed to act as a flood control levee providing a barrier to floodwater originating from tributaries to the east. Floodwater passes underneath the railroad embankment through various trestles. This floodwater then drains toward the NEMDC. In 1986 floodwater entered the Natomas area through a low point in the NEMDC levee at Main Avenue. The Selected Plan includes raising the levee at Main Avenue and installing flood gates. A detailed description of project features is found in Chapter VII of the Feasibility Report.

1888 The report doesn't indicate the cumulative effects of the dam project.

**RESPONSE:** Chapter 17, Cumulative Impacts, and Chapter 18, Growth-Inducing Impacts, of the EIS/EIR have been expanded to give more detailed descriptions of these impacts.

1094 Auburn Dam is likely to be built after the flood.

**RESPONSE:** The purpose of this report is to analyze various alternatives and recommend a plan for Congressional approval. The tentatively Selected Plan provides a 200-year level of protection and includes a flood control detention dam near Auburn. The Feasibility Report, EIS/EIR, is being moved as fast as possible to minimize the chances of flood damage occurring along the American River.

2132 The project description and subsequent discussion is inconsistent. In chapter 2, page 4: The Highway 49 relocation is treated as an integral component of the TSP. However, in chapter 17's discussion of cumulative impacts, the relocation is treated as a separate project and impacts of no project are ascribed to flooding due to the functioning TSP.

**RESPONSE:** Please see revised chapters 2, 4 and 17. Replacement of Highway 49 is an integral part of the Selected Plan. Chapter 17 addresses the potential of the State changing the proposed replacement to another location.

1852 The revised DEIS should indicate whether the TSP will conflict with proposed wildlife enhancement/creation in the Yolo Basin.

**RESPONSE:** There are no adverse impacts to proposed wildlife enhancement features in the Yolo Bypass and Basin from the Selected Plan. The lengthening of the Fremont Weir proposed in the draft report for the 200-year and 400-year protection alternatives has been dropped from the Selected Plan and the 400-year alternative.

1829 Due to lack of information, we are unable to make a positive determination of compliance with 404(b)(1) guidelines.

1837 It appears that plan selection and alternatives analysis was performed pursuant to NED guidelines prior to analysis pursuant to Section 404(b)(1) guidelines. EPA is concerned with sequential relationship.

**RESPONSE:** Federal Principles and Guidelines and Clean Water Act guidelines are adequately satisfied in the selection of the 200-year plan proposed. As stipulated under Principles and Guidelines, plan formulation was carried out consistent with applicable environmental laws, including the Clean Water Act. Chapters IV, V, and VI of the main report have been expanded to better describe the rationale for plan selection. More refined information on many topics has also been added to the EIS/EIR. Also, more clearer discussions can be found in Appendix G, Section 404 Evaluation which identifies the least environmentally damaging practicable

alternative. The Corps feels that all of these refinements to the main report and EIS/EIR fully substantiate compliance with the Clean Water Act, 404(b)(1) guidelines and will allow EPA to make a positive determination of compliance.

Under Principles and Guidelines the formulation of alternative plans leading to identification of the NED plan inherently includes environmental considerations. Consequently, the very nature of this selection process does not treat environmental criteria in a subservient manner. Therefore, the corps has not inappropriately eliminated less environmentally damaging flood control measures or feasible alternatives by applying principles and guidelines.

1836 Although we understand that mitigation for direct impacts only is a Corps policy, we request the Corps address the derivation of this policy and whether it is consistent with the understanding reached between headquarters of EPA and the Corps during the CEQ referral of Corps NEPA regulations.

RESPONSE: The EPA/COE Memorandum of Agreement on mitigation and the related February 7, 1990 guidance applies only to Corps regulatory functions. This is clearly established in the memorandum of agreement between the corps and EPA.

The Corps is committed to full mitigation for direct impacts on significant resources. Direct impacts related to a proposed project are impacts that are fully expected to occur as a direct result of project implementation. Indirect and cumulative impacts are those impacts which may occur as a result of a project and, in addition, may only occur due to actions taken by others later in time following implementation of the project. And, accordingly, the responsibility for determining the extent of such impact and mitigation needs rests with those that will approve/disapprove of the later actions causing the impact. The EPA/COE MOA on mitigation applies to Corps 404 permits and not to the civil works program such as this proposed project.

In preparing an EIS, the COE has responsibility to predict, to the best of its ability, potential indirect and cumulative impacts related to a project, and accompanying potential mitigation measures. They are disclosed in the EIS/EIR. Also described is a procedure by which the local governments will coordinate, evaluate and mitigate for such further impacts--the Memorandum of Understanding described in Chapter 22. Such disclosure provides an estimate of potential long-term impacts that may occur as a result of the project. This allows the decision-maker to make an informed decision regarding implementation of the project. These predicted impacts may never occur in the future, or they may be more adverse than predicted. Up-front mitigation of indirect and cumulative impacts provides no guarantee of satisfying the intent of

mitigation, that is, to provide no net loss of environmental values. Actual impacts may be totally different than the predicted indirect impacts.

Consequently, the Corps' policy for indirect impact mitigation is the most appropriate to assure mitigation of actual indirect and cumulative impacts that may occur in the future. In this policy, a nonfederal sponsor, who has the authority to implement public policy which affects these "indirect impacts", takes on responsibility for indirect impact mitigation. This allows for continuous evaluation and consideration to avoid the impact and/or provide for adequate mitigation if unavoidable.

1832 Fish, wildlife, and vegetation impact analysis for the 100-year (FEMA) levee and 100-year (FEMA) levee/storage alternative has not been completed or included in detail.

RESPONSE: Additional information has been added to the EIS/EIR, Chapter 7, to more fully describe impacts to these alternatives. This information is also used in Chapters V and VI of the Feasibility Report in the plan formulation and selection process.

1911 I find it incredible that you take 80 years of data and extrapolate out 400 years and still have confidence in the result.

14 You have only 82 years of data about flows in the American River and your analysis of it is really just educated guesses. The storm you are seeking to protect us from could easily occur after the end of the 100-year project life and all of the money would be wasted.

RESPONSE: The 80 years of hydrological data available for the American River watershed is used to predict the probabilities of occurrence of various size floods. This data is not actually used to predict what will occur over the next 400 years. The terminology used in the report, for example, "a 400-year flood", refers to a flood of a particular size which has a 1-in-400 chance of occurring in any particular year.

1095 I'm not sure we need the largest roller-compacted concrete dam in the world for our flood control problem. Are there problems with this type of construction that we don't know since it is one of the largest ever built.



RESPONSE: Extensive research has been carried out for many years related to the roller-compacted concrete method of construction. Placement of large volumes of concrete does pose special challenges, which will be resolved during advanced design. Appendix M, Chapter 6, Geotechnical Investigations - Concrete Materials and Roller-Compacted Dam Considerations, provides a detailed discussion of roller-compacted concrete.

1097 If you took the \$2 billion or a small fraction of it and just bought the undeveloped land in Natomas, you could probably protect it for a whole lot less.

RESPONSE: Chapter VIII, Special Topics - Natomas Area Facilities, discusses alternative flood control options for the Natomas area. Table VIII-3 demonstrates that it is more cost effective to provide full protection of the Natomas area through levee construction as proposed than to purchase flood easements or fee title. Also, please consider that the already developed American River floodplain for which this project provides protection encompasses much more than Natomas (i.e., south Sacramento, Pocket, downtown, etc.). There are 350,000 people and \$30+ billion in property in risk today regardless of what future development does or does not do.

1807 In view of major hydrological/climatological uncertainties, flood control measures should be pursued incrementally in a cost-effective manner.

RESPONSE: Since the time when Sacramento was initially founded, flood control has been "incrementally" established based upon the best knowledge available at the time. Early in the history of Sacramento, levees were established to provide flood protection. These levees were raised higher after recurring flood events demonstrated they were inadequate. By late 1955, Folsom Dam was added to the flood control system. In the flood of 1955, it was found that the flood control space allocated in Folsom Dam would not provide the level of flood protection which previous studies had indicated it could. As a result of the 1986 flood, Folsom Dam has again been found to be limited in its capacity to control floodwater. Flood control planning is necessarily limited by the uncertainties in predicting future flooding trends. However, as more historical data is developed and can be used in predicting future flood potential, the degree of certainty increases, leading to a project which provides more reliable flood protection.

1872 It is a misconception that a dry dam could be converted later. There is no policy for such expansion and no provision for expansion has been included in the design.

1865 The dam cannot be retrofitted for conversion to a multipurpose dam.

**RESPONSE:** Please refer to the response to a similar comment in the Multipurpose Section of this Appendix. There is no technical reason to prevent expansion of the dry dam to a multipurpose facility if authorized by Congress and additional environmental documentation was completed.

1193 It would be a large mistake if we tried to do the levee improvements only.

1113 We strongly oppose any alternative that would bring more floodwater through the City. Flows of 90,000 feet per second, well within the capacity of the present system, are extremely damaging.

1196 We oppose discharging higher flows down the American River by lengthening and raising the levees due to likely losses of life and property if the levees failed.

**RESPONSE:** The plan selection process considers public health and safety as one of several criteria. This selection process has arrived at a recommended alternative which does not increase flows in the lower American.

906 Look to other alternatives such as water conservation.

2024 A dam isn't the solution to the drought.

**RESPONSE:** The Selected Plan is designed to provide flood control only. Issues related to alternative water supply sources are unrelated and need to be considered by separate studies. The U. S. Bureau of Reclamation has just recently commenced a four-year study of the feasibility of a multipurpose Auburn project.

1849 Main Report, page IV-6. The \$625 million estimate to use existing upstream reservoirs should indicate the time period over which this has been calculated.

**RESPONSE:** The estimated \$625 million cost is a first cost (based on 1990 prices) which has not been annualized over the standard 100-year economic analysis life of project time period.

1890 Nowhere in the DEIS is there a discussion of suggestions for segregating waste from construction.

1943 How will fill material from the three ravines downstream of the left abutment be disposed of? How many vehicle trips will be required to dispose of the spoils? What is the impact of all these vehicle trips?

**RESPONSE:** Additional information has been added to the EIS/EIR regarding sites for disposal of unsuitable materials for construction. Site descriptions are found in the Main Report under Chapter VIII, Special Topics, and in the EIS/EIR, Chapter 2, Project Description and Rationale.

1356 Please consider a 10-year study on this complex project.

1197 Priority effort right now should be given to approving a dam in time to meet the 1992 FEMA deadline.

**RESPONSE:** The Sacramento area has an urgent need for flood control. An extended ten-year study of the issues involved in an investigation of this type is not warranted and would delay implementation of much needed flood protection.

1554 The American River Authority offered in September 1988 to finance a multipurpose dam. Your report doesn't provide a technical basis for supporting that the flood control-only dam neither advances nor precludes development of a multipurpose dam.

**RESPONSE:** See response to a similar comment in the Multipurpose Section of this Appendix.

1837 The basic project purpose is flood control, so secondary benefits shouldn't be utilized in the selection of alternatives in a way which limits the range of alternatives or eliminates practicable alternatives which still achieve the basic project purpose.

**RESPONSE:** Secondary benefits, such as recreation, are not used in selection of measures, or plan formulation related evaluations leading to the recommendation of the Selected Plan. See plan selection criteria in Chapter V of the Main Report.

1824 The Corps has completely omitted major construction-related direct impacts but according to Table VIII-4, 100 percent of the costs are counted.

1832 Potential impacts of a number of features of the preferred alternative and the 150-year alternative have not been analyzed, compared, or included in detail.

**RESPONSE:** More detailed descriptions of environmental impacts have been included throughout the EIS/EIR. Costs related to environmental impacts and mitigation are more clearly described in cost discussions of the Main Report, Chapter VII, Selected Plan.

1841 The DEIS doesn't adequately identify acreage of direct and indirect impacts to waters of the United States including wetlands for all alternatives.

1841 The revised DEIS should demonstrate that there are no impacts (direct or indirect) to wetlands or waters of the United States below the high water line from Goethe Park to the American River and Sacramento River confluence, or upstream of Goethe Park. If they are affected, they should be included within the wetlands delineation.

2114 Page 8-15, paragraph 5 - Proposed changes in hydrology with the alternatives could affect jurisdictional wetlands.

**RESPONSE:** Chapter 7, Fish, Vegetation, and Wildlife, describes impacts to wetlands. Other impacts to waters of the United States are found throughout the appropriate chapters of the EIS/EIR.

1830 The DEIS fails to comply with NEPA and CEQ regulations for the implementation of NEPA because it doesn't rigorously explore and objectively evaluate all alternatives.

1502 Why are other nondam alternatives not being considered.

2108 The USF&WS has several concerns about the DEIS meeting the full intent of NEPA. Because there are important fish and wildlife resources at risk, it is essential that a full array of reasonable alternatives be presented. There needs to be a

clear description of effort spent on alternative evaluation and an explanation for those dropped. It appears that substantially greater effort was focused on upstream alternatives, thereby prejudicing selection.

2134 No alternatives are presented for flood control in Natomas. All project alternatives presented involve essentially the same modification of levees and drainage. The CEQA requirement that alternatives received fair consideration is not met.

RESPONSE: A full range of alternatives has been examined to meet project purposes. These alternatives include nonstructural and structural options, as well as options providing varying levels of flood protection. The Corps has made no attempt to limit the scope of alternatives, nor its evaluation of those alternatives. The alternatives are discussed in Chapters V and VI of the Main Report. The Corps believes that plan processes under Principles and Guidelines do not limit full consideration of alternatives which may be less environmentally damaging. Under Principles and Guidelines all alternatives must be formulated consistently with environmental statutes. Furthermore, all plans are fully mitigated to the extent possible.

1833 The DEIS only includes a summary of the draft FWS Coordination Act Report.

RESPONSE: The final report includes the complete Fish and Wildlife Service Coordination Act Report in Appendix R.

1834 The DEIS states that previous dam construction facilitates additional construction and that roller-compacted concrete and the damsite lend themselves to expansion.

RESPONSE: The roller-compacted concrete method of construction was not chosen because of its capabilities to allow expansion of the structure. Any type of dam construction allows future expansion of the structure. The use of previous facilities remaining from the Bureau of Reclamation's multipurpose project does not enhance the potential for an ultimate expansion of the detention dam to a multipurpose facility since these facilities are available regardless of whether a flood detention facility is constructed.

1742 There are less expensive alternatives and there is no need to provide for future multipurpose benefits.

**RESPONSE:** See response to similar comments in the Multipurpose Section of this Appendix.

1912 There really is not a community or regional consensus of what to do with the Auburn damsite. Since there isn't, I think it is essentially impossible to raise the money to build it. You should admit that it is not practical.

**RESPONSE:** The State Reclamation Board of the State of California and the Sacramento Area Flood Control Agency are working to develop community and regional consensus regarding the need for additional flood control. These nonfederal sponsors, representing the local and regional community, have indicated an intent to participate in the project as nonfederal sponsors subject to the appropriate legislative authorization. Funding for the State's share of the project would be provided by legislative action. SAFCA would impose assessments to meet its financial obligations.

1887 You mention an impermeable barrier is needed in some of the levees. I would like to suggest sheet piling. It might be a viable and economic way of installing a barrier.

**RESPONSE:** Sheet piling has not been found to be as effective as the slurry trench method which is being used to rehabilitate levees in the Sacramento area.

1854 Appendix G, page G-3. The revised DEIS should indicate whether the footprint for the 200- and 400-year plans differ, which of them is more easily expanded and federal and State cost-sharing arrangements as regards future benefit.

**RESPONSE:** The Selected Plan has been revised to the 200-year level of protection. Discussion of the features of this plan has been expanded in the Main Report (Chapter VIII), EIS/EIR, and supporting appendices. Both the 200- and 400-year dams could be expanded in the future to a multipurpose facility. Less work would be required for the 400-year dam since it is higher to begin with.

1836 State and local responsibility for indirect impact mitigation doesn't obviate the necessity for the Corps' DEIS to fully disclose mitigation measures for indirect, cumulative impacts, and evaluate the feasibility of their implementation, even if they're outside the jurisdiction of the Corps.

RESPONSE: The Corps has identified, throughout the EIS/EIR, indirect impacts associated with the project. The cumulative impacts are identified in Chapter 17 of the EIS/EIR. Indirect and cumulative impact mitigation is the responsibility of the nonfederal sponsor. SAFCA is engaged in ongoing negotiations with various environmental agencies with the purpose of developing a mitigation plan for indirect impacts in Natomas. A summary of this information is included in the EIS/EIR.

2108 Based upon the wild and scenic river requirements, the impact analysis of the three alternatives in question (150-year and two of the 100-year alternatives) should be revised to include this information. The features should also be reexamined to ascertain whether or not more adequate mitigation could be developed to minimize impacts to wild and scenic river values. Otherwise, these are not reasonable alternatives.

RESPONSE: Additional information related to the wild and scenic river status of the American River has been included in the Recreation Chapter of the EIS/EIR (Chapter 14). The 150- and 100-year alternatives, though reviewed in detail, were not selected as the recommended plan, in part due to the significant impacts of their implementation on the lower American.

1826 Can we develop more environmentally sensitive levee designs? What were the original design capabilities, have they deteriorated, and can we restore them quickly? Did construction of Folsom Dam cause local officials to become lax about levee maintenance?

RESPONSE: The viability of more environmentally sensitive levee designs is dependent upon many technical factors including water flow rates, velocities, and channel configuration. Limitations on the ability to adjust channel configurations and levee locations of the American River levees severely restrict the feasibility of environmentally sensitive designs. Original design capacities are described in Chapter III of the Main Report. The current levee system underwent limited repairs as a result of damage sustained during the 1986 flood. Recent analysis found that the current system is capable of controlling the 115,000 cubic feet per second objective release with sufficient design freeboard. Construction of Folsom Dam had no effect on levee maintenance in the American River Basin.

2101 Table IV-3, Appendix C, lists "Resources Replacement" as a cost item. Nowhere is this term explained.

**RESPONSE:** Resource replacement costs are those associated with mitigating for loss of impacts to water supply and hydropower generation under the various alternatives. These costs are explained in more detail in Chapter V of the Main Report, under the section Screening of Alternatives - Economic Considerations - Other Economic Impacts.

2023 Measure T points to a local interest in developing of a project well beyond the scope of the TSP project.

**RESPONSE:** The Selected Plan has been developed to neither preclude nor advance the implementation of a multipurpose facility at the Auburn site. Since the Sacramento area faces a serious public safety problem and is in need of a higher level of flood protection, the Selected Plan has been recommended for implementation on an accelerated schedule. The feasibility and environmental effects of development of the water and power resources of the Auburn site will be the subject of a current study being pursued by the Bureau of Reclamation.

2078 In that proposed dam uses less concrete per volume (thinner lifts) than the Japanese consider necessary, and in view of the seismic risks, is this really a proven dam design?

**RESPONSE:** Roller-compacted concrete design is very similar to other types of concrete dam design. The concrete mix used is much drier than conventional mixes which allows the use of roller-compaction placement techniques. These techniques are now the accepted way of placing mass concrete for dams. The analyses and design procedures used are proven. The Japanese RCD (roller-compacted dam) construction technique generally has thicker compacted lifts than the RCC (roller-compacted concrete) construction method used in the United States. Compaction in thinner lifts guarantees a more uniform density and strength of concrete. There remains much final design and testing before the dam will be constructed. Concrete test mixes and a test fill will be used to finalize the design parameters. The final plans and specifications will result in a concrete structure strong enough to provide the flood control desired and with the ability to withstand the design seismic event without failing.

2187 From what point and to what point does the Corps measure the height of the flood control dam proposals?



**RESPONSE:** Please refer to Chapter VII, Table VII-1; the maximum height of the dam is measured from the streambed elevation to the top-of-dam elevation.

2077 What is the maximum height and width the dam could be built to? Would this be a dam built on a dam or an addition? What would be the acre/feet storage in a maximum size dam? What dam safety issues are possible?

**RESPONSE:** If authorized by Congress, subsequent to additional feasibility study and environmental documentation, it would be technically feasible to expand the flood control dam to the size of the previously authorized USBR Auburn project. That project proposed a dam approximately 630 feet tall which could store up to 2,300,000 acre-feet of water for various purposes. Most likely, the expanded dam would be constructed by raising and expanding the proposed flood control dam. If less expensive, a completely new dam could be constructed. The decision would be made by any future designers subsequent to detailed study. The same safety issues would exist for a larger dam as for the flood control dam, although for the multipurpose dam there would be a much greater likelihood of a large earthquake occurring near the dam at the same time the reservoir would be full or nearly full. Preliminary studies have shown that the flood control dam could be expanded to the size of the authorized project and still safely withstand the design seismic event.

2073 Dam failure is a possibility if facility is used as a multipurpose structure. Dam design is proven in smaller dams, but not of this height, width, and magnitude.

**RESPONSE:** Larger concrete dams have been built in the world. As discussed in the response to Comment #2078, the design of a roller-compacted concrete dam is similar to the design of a concrete dam constructed using other placement techniques. Studies have shown that a dam of the height proposed by this report could be safely constructed at this site.

2102 Page DEIS 3-14, top of page, sentence 2 - This sentence appears to indicate that the structure could fail due to the head behind the dam. Is it the water that "builds" up behind the dam that causes the problem or the overtopping of the dam which would cause the failure? Does this correspond to studies performed for the probable maximum flood?

**RESPONSE:** This paragraph discusses the use of storage above the design level of storage for Folsom Reservoir. This storage above design is called surcharge storage. What is described as "building

up" is stored floodflows. As the sentence states, if you store enough water, eventually it will overtop the dam and could cause damage. However, the probability of such an occurrence is extremely low and the further probability that damage from such a rare event would lead to failure of the dam is even much smaller. This paragraph is discussing storms which exceed the design storm for Folsom including the probable maximum storm, which is an extremely rare event. The 1986 flood exceeded the design storm in volume for Folsom and surcharge was utilized with no apparent damage to the dam. However, the paragraph is explaining that this is not a prudent design practice and flood storage alternatives are not formulated to utilize surcharge storage.

1927 Regarding your FEMA deadline, shouldn't you approach this massive a project at a slow enough pace to allow various agencies (such as Fish and Wildlife) to complete their studies and insure the project is done correctly.

2014 It is extremely short-sighted and self-serving to attach a timeline to this analysis and public review that is driven by the expiration on the moratorium on flood control insurance. Interim measures, such as the reoperation of Folsom, can be implemented to allow for a more accurate and thorough investigation to be completed.

RESPONSE: Numerous factors were considered during development of the schedule for completing the flood control studies. While the FEMA deadline was considered in preparing the project schedule, sufficient time was allowed to complete all of the studies necessary for a project of this scope.

2182 Despite a dam's vast storage capacity, a low storage yield ratio creates "large and widespread environmental losses" - a reservoir less than half full more than half the time results in an unattractive recreational resource at an outrageous price. Added restrictions on future development in the floodplain through restructured zoning laws is also an idea that appears to have gone unnoticed in this report.

RESPONSE: The Corps' proposed project does not include any permanent storage for water supply. Nonstructural solutions were evaluated. There are currently 390,000 people living within the floodplain. Nonstructural alternatives were considered during the plan formulation but were found to be infeasible. Please refer to Appendix B, Plan Formulation, for additional detail.

1836 Up-front mitigation for cumulative impacts or establishment and contributions to development of a mitigation bank would provide effective and flexible means to compensate for specific resources likely to be degraded or destroyed by the project.

2181 The intention of stating the negative impacts of a project, however, is to inform what their consequences will be, not merely a listing of possible impacts - as this document does leaving the person reviewing the document with a vague understanding of project consequences.

1833 Final mitigation plans are not analyzed, completed or included in detail.

2199 Important environmental omissions from the screening equation for the dam include impacts of the borrow operation, direct impacts on wildlife from construction, growth inducement, and other indirect and secondary impacts.

2196 The inadequacy of the DEIS/DEIR is such that it will be necessary to recirculate a revised draft version. Issues not addressed in necessary detail include the aggregate extraction, sites of cement processing, modes of material transportation, and mitigation of indirect impacts by local agencies from growth in Natomas.

2148 The public should have the opportunity to comment on aggregate mining and temporary inundation impacts of the TSP. Removing these destructive impacts from public scrutiny defeats the intent of the law providing for public comment. By placing the most destructive impacts outside of the public review and comment process, the Corps has made a mockery of the process. The business of the public must be done in the public arena, not behind closed doors.

2140 Supporting information on the statements of higher magnitude impacts for the no project and alternatives and the low magnitude of the TSP appear to have been presented without a thorough review of basic referenced background information and applied without adequate substantiation, justification, or documentation.

**RESPONSE:** Additional information has been added throughout the EIS/EIR to more clearly explain impacts and mitigation. To provide refined information, an environmental assessment of aggregate source alternatives was prepared. The results of the assessment are summarized in Chapter 7, Fish, Vegetation, and Wildlife. In addition, plan formulation sections of the Main Report (Chapters V and VI) have been expanded to more fully discuss measures considered and reasons for elimination of the measures, identification of the least environmentally damaging alternative,

and reasons for recommending the Selected Plan. Please refer to the response to Comment #1836 earlier in this Plan Formulation Section of the Comment/Response Appendix for a discussion of Corps policy on mitigating for secondary impacts. Up front mitigation or the establishment of bank potentially for closes alternative mitigation measures for indirect impacts. A mitigation bank would tend to limit flexibility on how future impacts would be mitigated since local sponsors would tend to only consider mitigation bank areas.

1958 The "no-project" environmental impacts are overestimated in Table 1-2, since future impacts under that alternative would be reduced if current efforts to obtain mitigation, restoration, and enhancement of fisheries and fisheries habitat in the watershed are achieved.

1832 Potential impacts of flood events under the without-project conditions have not been analyzed, completed or included in detail. These should be more quantitative for comparison purposes.

**RESPONSE:** Please refer to footnote 2 on Table 1-2. Under the no-action alternative, no flood control measures would be constructed. More detailed discussions of impacts of flood events under the without project conditions are found in Appendix B.

2181 The DEIR is vague in informing the reader which agency did what research in what field. It is difficult to determine whether information is given by experts in the field or by project proponents, which could result in avoiding topics that would be detrimental to the TSP.

**RESPONSE:** Chapter 25 includes a list of the preparers and their respective roles in preparing the EIS/EIR.

1976 The EIS fails to identify opportunities associated with effects taken to improve flood control, such as the additional space for light rail if the Howe Avenue Bridge must be replaced.

**RESPONSE:** Agencies with projects having potential cumulative impacts with the American River Project were contacted and the information provided is summarized in Chapter 17.

2060 Since the preferred alternative is an expandable gated dam, and no provision is included for legislative protection of the canyon through an NRA or wild and scenic river designation, the only honest way of characterizing the consequences of the TSP is permanent inundation of the canyons.

**RESPONSE:** The design for the proposed flood detention dam was such that future expansion of the structure for other purposes was not advanced nor precluded. Permanent inundation could not occur without an additional EIS/EIR and Congressional authorization. Please refer to Appendix B for a full discussion.

2153 Construction of the recommended plan would allow for expansion of the dry dam with additional environmental effects. The EIS should assess the cumulative effects of the expanded dam on the natural environment as recommended by the Council on Environmental Quality.

**RESPONSE:** The cumulative effects were evaluated and are presented in Chapter 17 of the EIS/EIR.

1976 Study identifies several problems with existing conditions (high river temps during spawning and migration periods, low reservoir levels and high temps, loss of thermocline) but it fails to consider how flood control measure might improve those conditions.

**RESPONSE:** The Selected Plan is a single-purpose flood control project which would detain floodwaters for short periods of time and regulate those flows out to the downstream facilities. There will be no permanent storage of water and, therefore, there will not be any impacts (either positive or negative) on the environmental factors mentioned in this comment. Several of the alternatives do impact these factors, as discussed in detail in the various chapters of the EIS/EIR, and particularly in Chapters 6 and 7.

2059 The proposal ignores adequate protection of existing river environment and its value as a recreational resource.

**RESPONSE:** Please refer to Chapter 14, Recreation, of the EIS/EIR. Because of the short-term and infrequent inundation of the American River canyon if an upstream dam is constructed, there would be relatively minor impacts to existing recreation resources.

2105 Page IV-2, paragraph 6 - The discussion of the TSP and the other alternative did not address the acceptability or impacts with respect to existing water supply and power contracts.

**RESPONSE:** The description of the Selected Plan was clarified to explain that it is consistent with the operation and maintenance of other water resources projects in the study area. The report indicates that those alternatives involving modification of operations of Folsom Dam and Reservoir would adversely impact water and power purposes of the CVP. Those alternatives included costs to cover replacement facilities to mitigate for those impacts.

1978 DEIR does not adequately address construction-related impacts. It should analyze haul roads, identify a plan which contains information on haul routes, number of trucks per day and traffic congestion.

1978 The report should disclose how many additional roads will be needed for construction at the dam site and the relocation of Highway 49.

**RESPONSE:** Additional studies have been conducted of these impacts. Chapter 7, Fish, Vegetation, and Wildlife, and Chapter 11, Transportation, have been amended to include the findings. A detailed analysis is presented in Appendix M.

1982 DEIR should disclose that increased activity in construction area and mining area could result in increased susceptibility of wildfires.

1942 The DEIR should disclose that increased activity at the construction site could result in increased susceptibility of the area to wildfires. Mitigation measures for this hazard should be disclosed.

**RESPONSE:** Chapter 15, Socioeconomics, includes a discussion of the potential fire hazard and the existing fire protection available in the area.

2149 The Corps assumes that construction materials will go into the Placer County landfill (pages 15-25). There is no discussion of other options, like requiring source separation for disposal. For example, wood waste can be burned in the Ultra Power facility in Rocklin, scrap steel could be recycled, trash generated by workers could be recycled. Such options should be addressed.

**RESPONSE:** It is presumed that any future construction contractor will be encouraged to recycle waste.

2002 What is needed is another 10 percent flood control on 18,000 square miles north of Sacramento, not just within the small 1,875 square miles of the American River Basin.

**RESPONSE:** Runoff from the American River Basin to be controlled by a flood control project is independent from the runoff in the Sacramento River Basin north of Sacramento. Flood control projects are required to control the floodflows from both basins. Refer to Appendix K, Hydrology, for additional detail.

932 What California really needs is a comprehensive water plan before any new projects are authorized.

**RESPONSE:** This project is a single-purpose flood control project. Permanent storage of water for supply purposes is not proposed. Please refer to Chapter 2, Project Description, of the EIS.

2180 To develop a realistic cost-effective alternative requires the Corps to adopt...a series of incremental measures...use upstream storage and FEMA analytical procedures...use corrected water surface elevations in lower American River and Sacramento River based on actual probability of peak flows...optimize operation of upstream reservoirs...improve Folsom operation...repair American River levees...improve Fremont Weir and Sacramento Weir (see letter pages 7-8).

**RESPONSE:** Chapter IV of Main Report describes measures considered and either retained or deleted from further consideration. Several of the measures identified by the commentor were deleted during early plan formulation for various reasons mentioned in Main Report.

- Use upstream storage and FEMA procedures - Please refer to Chapter IV of Main Report, Plan Formulation Appendix, and responses to comments on this subject for description of existing upstream storage and why measure was deleted from further consideration.

- Use corrected water surfaces and actual probability of peak flows. Historical observations indicate that peaks on Sacramento and American Rivers tend to be coincident. Further, although levee break elevations are a function of river stage, the stage at the estimated locations of break is in nearly all cases independent of stages in the Sacramento River.

- Improve Folsom operation - Reference Chapter IV of Main Report, Plan Formulation Appendix, and response to Environmental Defense Fund comments in pertinent Correspondence Appendix for explanation of options for Folsom operation for flood control.

- Increase American River levees - Reference Chapters IV and V in Main Report for description of measures and alternatives including increasing the objective releases from Folsom Dam and modifications to levees along American River and Yolo Bypass.

- Improve Fremont and Sacramento Weirs - Reference Chapters IV and V of Main Report for description of potential modifications to Sacramento and Fremont Weirs.

2152 We urge you to prepare a revised draft EIS/EIR that formulates and evaluates at least two other candidate plans with advocacy and resources equivalent to those expended on the recommended plan.

1785 After alternatives are exhausted, additional protection could be provided by a 200-foot ungated dam.

2191 The report does not explain why the 200- and 400-year protection levels did not combine measure, but instead relied solely on an upstream dam. This appears to be based on: (1) diminution of environmental impacts to the canyon, (2) an underestimation of costs of the dam, (3) exaggeration of economic and environmental impacts of increased storage at Folsom, (4) exaggerated analysis of levee improvements, (5) hydrologic analysis that cannot withstand scrutiny.

2190 The analysis of modifying the spillway, increasing flood control storage at Folsom, and improving the downstream levees is inadequate. What is the report referred to on page V-8 that indicated that larger increases in Folsom release and storage "likely would not be feasible economically (on an incremental basis) or institutionally"?

RESPONSE: The Corps initially analyzed 27 alternatives for providing flood protection for the Sacramento area. Through an economic and environmental analysis, these were reduced to six alternatives for detailed analysis. During the initial studies, the Corps determined that once an alternative included a dam upstream from Folsom Dam, any upstream dam alternative would be environmentally and economically superior to an alternative that also included reoperation of Folsom Reservoir or additional downstream levees (see Table V-1 in the Main Report). Reviewers of the report, however, found that the Corps had not combined all potential alternatives with an upstream reservoir.



For this reason, it was requested that two other alternatives be formulated to provide 200-year protection and an economical analysis made. Both alternatives included increasing Folsom flood releases from a maximum of 115,000 cfs to 130,000 cfs (requiring downstream levee construction), lowering Folsom Dam spillway 15 feet and utilizing upstream power reservoir storage. For existing upstream reservoirs, the Corps' estimates of available storage were utilized, i.e., 47,000 acre-feet for a 100-year or more frequent storm and zero for a 200-year storm. Alternative A increased flood storage at Folsom Reservoir from 400,000 to 590,000 acre-feet (thus requiring an upstream dam with a flood storage of 375,000 acre-feet and a height which is 387 feet compared to 425 feet for the Selected Plan). Alternative B increased flood reservation at Folsom Reservoir to 470,000 acre-feet which requires a 410,000 acre-foot upstream reservoir with a 398-foot-high dam.

Estimated first cost of these two alternatives is: Alternative A \$918 million and Alternative B \$805 million. Since the estimated first cost of the 200-year Selected Plan is \$620 million, an upstream dam project is more economical as well as providing the desired level of protection more reliably since it does not increase the reliance on downstream levees through a highly urbanized area.

Following are the primary features for the new alternatives:

Both alternatives include lowering the spillway at Folsom Dam by 15 feet requiring installation of five new tainter gates and lengthening the stilling basin 50 feet and increasing the objective release from 115,000 cfs to 130,000 cfs. In order to safely pass the additional flows, the downstream levees must be modified with slurry walls, toe drains, and bank stabilization. These are described in more detail in Appendices M and N. Also, because of these additional flows, work is required in the Sacramento Weir and Bypass to channel these additional flows safely into the Yolo Bypass to maintain the system capacity in the Sacramento River downstream of the American confluence. Other work in the Natomas Basin is very similar to that proposed under the current 200-year Selected Plan. The levees of the NEMDC, Dry and Arcade would have to be raised slightly because of the higher water surface elevation generated by the 130,000 cfs as opposed to the 115,000 cfs current discharge.

In addition to lowering the spillway and increasing the objective Folsom release, one new alternative would increase the Folsom Reservoir flood control storage space from 400,000 acre-feet to 590,000 acre-feet. Using these controls and performing flood routing studies, a 387-foot-high dam with 375,000 acre-feet of storage would be required to provide the same 200-year level of protection as the Selected Plan.

Similarly, a second alternative considers increasing the Folsom flood control storage from 400,000 to 470,000 acre-feet to lessen the impacts at the reservoir. This translates into a 398-foot-high detention dam with 410,000 acre-feet of flood control storage for a 200-year event.

These alternatives compare with the Selected Plan with a 545,000-acre-foot storage capacity behind a 425-foot-high detention dam. Essentially, these 200-year alternatives become a matter of comparing the costs and environmental impacts in the upper canyon of a single flood control structure at Auburn with the costs and impacts of a smaller detention dam combined with measures at Folsom and the lower American. Using the plan selection criteria outlined in Chapter V of the Main Report, we can conclude the 200-year combination alternatives would not replace the Selected Plan.

**ACCEPTABILITY:** Each of the combination alternative plans would meet the local sponsor's objective of providing a minimum 200-year level of protection. However, the State Reclamation Board and other commentators have expressed some concern over any increase in the objective release from Folsom. In addition, it is anticipated there would be some opposition in the community to any modifications in the operation of Folsom Reservoir which would affect competing uses of the facility. The increased flood control storage space would have potential impacts on the downstream fisheries, recreation uses at the lake, water and power resources generated by the facility, etc. In total, the combination alternatives, though meeting the local sponsors criteria, do have some impacts which make this alternative less acceptable than the Selected Plan.

**COSTS:** The California Department of Water Resources has done preliminary analysis of the 200-year combination alternatives including costs. Their analysis indicates the 200-year alternative with 590,000 acre-feet of storage at Folsom combined with a 375,000-acre-foot detention dam near Auburn would cost approximately 35 to 40 percent more than the Selected Plan primarily due to costs of resource replacement, lowering the spillway, and work in the lower American and Sacramento Weir which outweigh the additional costs to construct an approximately 40-foot higher dam. The other alternative with 470,000 acre-feet of storage combined with a 410,000-acre-foot detention facility has costs which exceed the Selected Plan by approximately 15 to 20 percent primarily for the reasons described above.

Therefore, on balance, the Selected Plan which includes a single flood control facility and does not affect current operations at Folsom and below is more cost effective.

**ENVIRONMENTAL IMPACTS:** As previously described, analyzing the environmental impacts of the Selected Plan with the combination alternatives boils down to a comparison of impacts in the upper

canyon with impacts in the lower American and at Folsom. It becomes very difficult to place a quantitative value as the impacts are different. However, an argument can be made empirically that it is better to sustain the impacts at a single location under the Selected Plan as opposed to spreading the impacts over a longer stretch of river which would occur with the combination alternatives.

The impacts in the upper canyon associated with the Selected Plan include direct construction impacts which would obviously be greater with a larger structure and inundation-related impacts such as vegetation and wildlife mortality and soil sloughing. The combination alternatives would have the same type of impacts, but to a lesser degree because of the smaller structure and associated flood control pool. However, these alternatives would cause impacts on the lower American River from levee modifications to safely pass the higher flows; impacts because of the operational modifications at Folsom on vegetation, wildlife and fisheries on the lower American; impacts on recreation use of Folsom Reservoir because of the lower water surface elevation; and impacts on water and hydropower resources.

An important consideration which has recently been studied in more detail is the relationship between discharges at the Auburn detention dam and soil stability of the surrounding canyon during reservoir drawdown. Preliminary studies conducted by the State Department of Water Resources show that soil instability is a potentially significant problem at high drawdown rates. The Selected Plan has a release of 85,000 cfs which, based on preliminary calculations, could cause soil sloughing in the adjacent canyon walls for certain soil types. The combination alternatives exacerbate this problem by having release rates of 120,000 cfs and 130,000 cfs which would cause additional soil sloughing. This problem can be obviously mitigated by either controlling the release through some regulation of the outlet works, or making the uncontrolled outlet smaller. To make the outlet smaller, however, requires a higher structure to provide the same level of protection (which causes more upper canyon impacts).

In conclusion, the impacts associated with the different alternatives are different. Trying to quantify and compare inundation impacts in the upper canyon with impacts on fisheries on the lower American is not clear cut. However, the idea of concentrating and monitoring impacts at a single location as opposed to spreading them throughout the system seems to be a reasonable approach.

**PUBLIC SAFETY:** As previously alluded to, the idea of conveying more flows behind high earthen levees as opposed to upstream storage at a detention dam is not a reasonable flood control policy from a public safety perspective. Appendix N of the report states:

High levees are inherently less safe than other flood control measures such as upstream storage, channels, or bypasses. While every attempt is made to include all work needed to insure the safety of the levee system, 23 miles of levee must withstand the increased forces and velocities of higher objective releases. It takes only one weak section in these long levee reaches to create a catastrophic scenario. The American River levees barely survived the 1986 flood which had a discharge of approximately 130,000 cfs. Levee rehabilitation was necessary in several areas after this flood. Had this discharge lasted longer than the 24 hours it did, there would have most probably been a breach in some area. Historically, the Corps would only utilize high levees in an urban area if they provided protection for at least the standard project flood (SPF), which represents a rare event. If these measures were to represent flood control for some flood less than the SPF, the Corps should not responsibly recommend them as a viable flood control alternative.

In conclusion, from a public safety perspective, the Selected Plan is much preferred over the combination alternatives.

Based on the Corps' plan selection criteria outlined above, the combination alternatives including Folsom reoperation, lower spillway, higher objective release and a smaller flood control detention dam would not replace the Selected Plan with the singular flood control facility near Auburn. The costs are higher, the degree of confidence for public safety is not as great, the project poses some potential acceptability problems for the local sponsor, and the environmental impacts, though not easily quantified for comparison, are at least as great and potentially more significant because of the soil instability problem.

2108 The description of people and public property at risk needs to be more clearly defined.

RESPONSE: The Economics Appendix, Appendix C, details the population and property within the floodplain and the with- and without-project damages to property that would be expected. In particular, refer to pages C-13, C-17, and the plates at the end of Appendix C which show the floodplain.

1848 Main Report, page III-19 - Should include the 200-year floodplain and nonmonetary floodplain values in the floodplain damage inventory.

RESPONSE: The historical values for flood damage are not in a form that would allow for the damages to the 200-year floodplain. The

damages calculated for the with- and without-project flood events use existing and expected land use values to determine expected damages for different flows. The Economic Appendix, Appendix C, and the Land Use Appendix, Appendix E, present the present and expected land use and the valuation of that land use.

1117 The discussion of consequences of action for each alternative is inadequate.

2014 The environmental, health and safety, and financial issues at stake in this project are worth the best and most thorough analysis. Based on our initial review, the DEIS/DEIR does not possess this level of thoroughness and it lacks clarity in potential impacts and mitigation.

2010 We have determined that the DEIS lacks adequate scientific basis for the conclusions drawn; the DEIS should be revised and recirculated.

1983 Not all credible alternatives were analyzed. The DEIR/DEIS fails on all counts of adequacy, completeness, and good faith efforts.

2182 The report lacks the unbiased information necessary to support a conclusion related to the various alternatives. Major improvements are necessary in the presentation of objective and unbiased information with the appropriate citations concerning all of the alternatives in question.

1396 I think you should look at other solutions to save the Sacramento lowlands.

**RESPONSE:** The Chapters "Alternative Plans Considered" and "Plan Selection Process" (Chapters V and VI respectively) in the Main Report have been expanded to provide the reader with a better description of the environmental impacts associated with each alternative and proposed mitigation. Likewise, pertinent chapters in the EIS/EIR have also been expanded based on specific comments received and new data or information developed since release of the draft. An initial list of 27 potential project alternatives derived from various combinations of feasible flood control elements was screened to six using environmental and economic considerations described in the report. A detailed description of the various flood control elements used to derive the alternatives is found in Appendix B and was based on input from the Corps, local sponsor, and other interested individuals and organizations. These six alternatives were then analyzed using criteria described in Chapter VI to arrive at the Selected Plan, which in this case is a 200-year project. A thorough analysis of each alternative was made considering the impacts of each plan in arriving at the Selected Plan.

1951 When uncertain, authors do admit it, but nothing is done about it. Few calculations or estimates are made by the authors.

**RESPONSE:** As with any project of this size and complexity, there will be uncertainties including, but not limited to, hydrologic assumptions and environmental impacts. The best available information has gone into studying the problem, developing the range of alternatives and then comparing relative impacts. These procedures are described throughout the Main Report and EIR/EIS. When possible, quantitative analysis and supporting documentation have been included in the reports. Otherwise qualitative analyses and discussions have been used in describing in various project elements and their impacts.

1954 Development and analysis of alternatives is seriously deficient. The no-project alternative is analyzed in such a way as to ascribe adverse effects not related to it, i.e., decline in fisheries. That is due more to poor management, increasing water use by agriculture, etc. All alternatives presented include the Corps building something. You should look at alternatives outside Corps jurisdiction. Alternatives at equal cost as your project were ignored.

1834 The objectives of enhancement of incidental water supply and hydropower in Folsom Reservoir and development of the NED plan may have unnecessarily limited the scope of flood control measures considered acceptable and feasible, especially if evaluated solely against NED criteria.

2183 EDF has previously submitted extensive comments critical of the Corps' analysis of flood risk and alternative options. The Corps continues to advocate a costly and environmentally unsound approach to flood damage reduction, which will delay implementation of more readily available alternatives.

2157 The Corps has indicated that it now has a new mission of environmental protection equal to its traditional purposes of providing flood control and navigation. However, the referred alternative indicates that the Sacramento District holds to "business as usual".

2152 A major activity of water resources planning should be to formulate the mix or package of structural and nonstructural tools that makes the most satisfactory contribution to achieving stated objectives in an economically efficient and environmentally benign matter.

1964 The Corps began to describe the NED plan in "straw man" terms because the cost of the high level of protection (400 years) would be difficult to justify.

1954 No comparative discussion of adverse and beneficial impacts of each alternative, TSP selected primarily on NED benefits; environmental consideration was minimal. Report is not specific on why alternatives were examined and rejected. No overriding economic or social reason given for not selecting an alternative. No alternative shown to be infeasible.

1065 You should encourage other ways of flood control, irrigation and other things.

**RESPONSE:** The plan selection process followed in this document is consistent with the policies outlined in the Water Resources Council's principles and guidelines which requires identification of the plan which reasonably maximizes net national economic development (NED) benefits, consistent with protecting the nation's environment. This report combined a number of feasible flood control alternatives, including structural and nonstructural, into 27 potential plans. The alternatives considered are described in Chapter V of the Main Report which has been expanded to better describe the impacts and reasons for eliminating some and retaining others. Further clarification on the specific flood control measures considered and reasons for not retaining can also be found in Appendix B along with additional plan formulation background. Chapter VI then describes the criteria used to screen the options retained to arrive at the tentatively selected plan. Water supply is not a part of this project; therefore, it was not used in developing the flood control elements to be used in selecting the potential alternatives or in the plan selection process. The Corps does not feel that use of the Principles and Guidelines unnecessarily limits alternatives considered. Under P&G all alternatives must be developed consistent with protecting the nation's environment and must be in compliance with all environmental laws. Furthermore, under P&G, all plans are fully mitigated to the extent possible.

1963 Independent analysis could challenge the Corps arrival at the size of various floods, developing levee failure criteria for the levees, defining the limits of the 100- and 400-year floodplains, assessing the real environmental impacts of flood control alternatives, and determining the size and character of the preferred project.

1963 Public interest can be best served by subjecting American River hydrology to independent analysis.

1114 The PCL wanted to participate in this process and hoped there would be a real effort to review environmental concerns and develop a mutually acceptable project.

2121 The Corps is in a position of conflict of interest. An independent assessment should be made of the real need for flood control.

**RESPONSE:** As a result of comments received, a review of nearly all assumptions, including those related to the need for flood control, hydrologic data, and environmental considerations has been carried out by Corps, State, and local staff and consultants. This has resulted in expanding many sections of the Main Report and EIS/EIR and has led to elimination of several features of the Selected Plan. In regard to hydrologic assumptions, refer to Appendix K.

In addition to the review of data by the Corps, there have been several consultation meetings where affected agencies and environmental groups have been invited to review and discuss the basic assumptions, analyses, and conclusions which are the basis of the report. These meetings are in addition to the 14 community workshops held to provide information to the public and answer questions. The workshops were held prior to the formal public hearings to assist in the public review process.

With this level of effort to provide information to the public, the Corps does not feel an additional "independent" analysis is warranted which would not only delay the process but significantly add to the costs.

1183 The Corps has put Sacramento at a greater risk of flooding by selecting this project because once taxpayers are aware of the enormous financial and environmental costs, this pie-in-the-sky dream will evaporate and Sacramento will be without long-term solutions.

1116 This report represents a failure on the part of the Army Corps of Engineers, the Reclamation Board and the local flood control agencies in not assuring that we arrive at an acceptable solution.

**RESPONSE:** This report represents a significant effort by the Corps of Engineers, the State and local government (through SAFCA) to address a significant infrastructure problem and public safety threat facing the Sacramento community. The problem has been adequately represented and a wide range of alternatives considered both economically and environmentally (see Chapter V and Appendix B). The viable alternatives were evaluated using the Corps' NED policies to come up with the tentatively selected plan which reasonably maximizes national economic development. The EIS/EIR



has been prepared pursuant to NEPA and CEQA guidelines so a decision can be made by Congress, the State and the SAFCA Board on a project as soon as possible to address the serious public safety threat from potential flooding in Sacramento.

2008 The alternative discussion provided in the DEIS lacks the alternative selection justification. The report does not consider public trust responsibilities in the reoperation of existing facilities and does not quantify physical and economic criteria used to discard design options.

2261 A multitude of biotechnical bank stabilization techniques should be considered as less environmentally damaging alternatives to rip-rapping.

**RESPONSE:** See previous responses addressing impacts of Folsom reoperation which suggest minimal improvements in the level of flood protection can be achieved with significant impacts on the environment. Numerous flood control elements were combined into 27 alternatives from which a final six were reviewed in more depth. Appendix B describes the various elements and their impacts. Chapter V of the Main Report describes the costs, benefits and associated environment impacts and necessary mitigation of the various alternatives which was used to screen out the less effective and retain the final six for final review.

1966 Only one of the alternatives (150 year) which could incorporate lower American measures was studied in detail. Apparently the three 100-year alternatives were added at the last minute without time for study by the FWS or the Corps.

**RESPONSE:** Costs, benefits, environmental impacts and mitigation are described for each of the six alternative plans retained in Chapter V of the Main Report. These include the three 100-year alternatives as well as the 150-, 200-, and 400-year alternatives. When impacts are further described in related sections of the EIS/EIR, such as Section 8, those alternatives which are similar in their impacts have not repeated information. Where impacts of the 150-year plan are similar to the 100-year plans, previous information has simply been referenced with a discussion of relative magnitude of impacts.

1960 The report should state that already developed portions of Natomas, and some portion to be developed in the future, are extremely unsafe and will probably result in loss of life during a flood, regardless of frequency protection.

RESPONSE: The chart in Chapter VI of the Main Report under the section describing Public Health and Safety does describe the potential loss of life for each of the project alternatives. As described in the chart, this risk decreases for the higher levels of protection; but it also shows an increase in the risk for the 100-year alternatives. This would result from the increase in development which could occur with the 100-year level of protection, including the Natomas Basin, while relying on higher levees and Folsom in lieu of a more reliable upstream detention dam.

1838 Lack of local support (landowners) isn't sufficient justification for dropping the nonstructural alternative (flood easements) from analysis pursuant to the guidelines or NEPA. Other solutions should be addressed.

RESPONSE: In reviewing potential alternatives, both structural and nonstructural solutions were considered. Since the project's objective was to provide flood protection to people and property in the current floodplain, nonstructural alternatives were considered which met this objective and are discussed in Chapter IV of the Main Report and Appendix B. Also, specifically in Natomas, alternatives were reviewed which essentially protect the urbanized area (south) and leave the remaining area (north) in the floodplain by constructing a cross-levee. The high costs of the levee and necessary flowage easements due to aggravated flooding in the unprotected area are displayed in Chapter VIII of the Main Report with reasons for not selecting this alternative.

2185 The principal environmental impacts associated with nondam options, except for the levees upgrading, result from reoperation of Folsom. However, a proper analysis of the actual flood risk and of alternative management show that a high level of protection could be achieved without such a reoperation.

RESPONSE: The risk of flooding is based upon hydrologic data and is documented in Appendices K and L. Essentially, this analysis indicates a level of flood protection greater than 100-year cannot be achieved without additional upstream storage either in Folsom Reservoir or another facility. Even at the 100-year level, significant improvements in the lower American River are required with significant environmental impacts. This alternative and associated costs and impacts are described in Chapters IV and V of the Main Report. Information about the downstream levees is found in the Geotechnical Appendix M.

2074 I support the upgrading of levees, weir and other below-Folsom improvements.

1966 A study of the lower American (like that of Natomas) levee improvements is likely to reveal that a respectable job can be done with less for less. Because the Corps focused on dam alternatives, there is virtually no improvement.

**RESPONSE:** Alternatives considered included work on the lower American River levees singularly and in combination with other elements such as Folsom reoperation. Lower American elements included raising and stabilizing existing levees as well as constructing new set-back levees to accommodate higher objective releases from Folsom which would provide more flood protection. These alternatives are discussed in Chapter IV of the Main Report. The option of increasing channel capacity and levee modification was retained for further study and is described in Chapter V, while the levee set-back alternative was dropped from further study due to the high cost associated with relocation of existing structures. The increased channel capacity alternative was not the selected plan primarily due to the high cost and environmental impacts of work in the lower American in combination with the lower level of flood protection afforded by its implementation. Work on existing levees to accommodate higher releases from Folsom are described in the Geotechnical Appendix M.

2008 The discussion of need for riprap does not consider alternative methods of bank stabilization. Many other methods are available. We suggest you consult with Dr. Andrew Leiser, your biotechnical slope protection consultant, and the Corps' Waterways Experiment Station to identify environmentally sensitive bank stabilization methods.

2190 The analysis of the adverse impacts from levee improvements is inadequate. The Corps should do as in-depth an analysis of the American River levees as they have for the Natomas levees. During the course of those levee stabilization studies, the Corps has found low-impact slurry walls could be used in more areas than anticipated.

2204 Formulation: Impacts associated with the reoperation in Table B-2 is in some dispute because of the discrepancies in the recommended levee work coming from various elements in the Geotechnical Appendix. Some important technical reports are also missing from the package. (See letter page 26, last paragraph and page 27.)

2154 The report has not proved its assertion that at least one out of six levees will fail if the American River flows through Sacramento are greater than 115,000 cfs. The use of this

assumption increases annualized benefits by \$23 million. An independent engineering firm has stated that levees could be improved and raised to handle 150,00 cfs without significant realignment.

- 2204 By law, wild and scenic river status for the American River is not an issue where flood control concerns are involved. It does mean, however, any proposed riprap or levee work should be undertaken with the resource objective of wild and scenic river designation in mind, including full use of alternatives and low-impact facility design.
- 2110 Page DEIS 3-12, paragraph 4 - There is no supportive information to demonstrate that an additional increment of erosion occurred at flows above 115,000 cfs.
- 2204 It is not clear why it was assumed that any channel widening/levee setbacks needed to result in the same surface elevation as the 115,000 cfs discharge.
- 1467 River habitat could be damaged along the lower American by the usual Corps approach so any proposal must include a plan to minimize the impact of levee improvements.

**RESPONSE:** After the storms of 1986 and as part of this report, geotechnical investigations of the existing American River levee system were undertaken. Previous studies were used to extrapolate data and have been referenced in the appendix. The results of the work are described in Appendix M. The existing levees were analyzed using three criteria: freeboard, slope stability and piping stability. Representative levee reaches evaluated using these criteria for flows of 115,000, 130,000 and 180,000 cfs. The results indicated the levees were stable at the objective release of 115,000 cfs, but would not meet the established factors of safety and would likely fail at the higher releases. This indicated the need for remedial repairs at the higher releases.

Chapter 4 of Appendix M also includes studies of potential erosion for flows of 130,000 and 180,000 cfs. It was assumed the objective release of 115,000, to which the levees have been historically subjected to on several occasions, can be sustained without significant erosive damage. Locations and recommendations for erosion protection for the higher releases are included in this chapter. The chosen erosion protection measure was riprap because it is the least costly alternative (though not as environmentally sensitive) which has proven results.

If raising the objective release were part of the Selected Plan, alternative bank protection measures and alternative stabilization techniques would be evaluated in more detail. In addition, proposed mitigation features as a result of the work done in the

lower American are described in Chapter V of the Main Report and include riparian planting and spawning program.

The recommended levee improvements and associated costs for the 130,000 and 180,000 cfs releases are summarized in Appendix N with a qualitative discussion. They are also included in Chapter V of the Main Report.

It is important to note that higher water levels and increased erosive forces on levees are not the only effects of higher objective releases from Folsom Lake. Equally important is the increased stress on Sacramento River levee systems which would be caused by higher American River flows.

2110 Page DEIS 3-12, paragraph 6 - Additional discussion of channel capacity increase is warranted here. Construction of new channels or widening existing channels could increase downstream capacity without compromising levee protection and flooding risk.

2204 The report is not specific in what areas would need to be incorporated in the Parkway in order to provide a channel capacity of 180,000 cfs nor how this area could have been reduced if a different water surface elevation limit was used, if levee improvements were made on levees not moved, and new setback levees were upgraded to provide higher water stages. (See letter page 28, last paragraph.)

RESPONSE: This portion of the report is considering additional channel capacity by raising and modifying the existing levee system. Another alternative was considered which included additional channel capacity through constructing new set-back levees as alluded to in the comments. This alternative is discussed in Chapter IV as an alternative dropped from further study.

This alternative requires relocation of either the north or south levee for the entire length of the parkway. Essentially, this would require relocation of between 5,000 and 6,000 residences depending on which side is set-back. In addition, schools, hospitals and numerous business would also need to be relocated. For these reasons, this alternative is considered economically infeasible and likely not acceptable to the community.

2159 Any alternative that relies solely on increasing the capability of the lower American is undesirable because it will result in environmental damage due to levee repairs and

increased chance of loss of life and property should a levee fail.

**RESPONSE:** The results of this report concur with the comment.

1166 I believe that the cost of levee repairs has been understated and that the time it takes to make the repairs could be measured in years.

**RESPONSE:** The costs associated with the levee modifications on the lower American are based on analysis described in Appendix M and are shown in Appendix N. The Corps believes the costs are realistic. Based on the plan selection criteria described in Chapter VI of the Main Report, including economic considerations, this alternative has not been chosen as the Selected Plan. The Selected Plan does not include any work on the American River levee system.

1850 DEIS, page 2-5 - In the revised DEIS, explain why the East Levee Road requires a 30-foot-wide top and a 60-foot-wide base, describe existing widths and evaluate whether impacts to waters of the U. S. can be lessened with a smaller footprint.

**RESPONSE:** The 30-foot-top width is assumed to accommodate two lanes of travel along East Levee Road with a minimal shoulder area adjacent to each lane for safety purposes. The bottom width then is a function of the levee height and slope (existing slopes are 2 to 1 on the landside and 3 to 1 on the waterside). These recommendations will be further reviewed during the design stage and could be revised based on local input and impacts on wetlands.

2021 The selection of the 200-year plan will lead directly to the selection of a more costly TSP, of which those demanding higher protection will only pay 30 percent.

**RESPONSE:** Selection of a 200-year plan involves construction of flood control-only detention dam near Auburn and other works near Natomas. The reason for selecting the 200-year over the 400-year alternative was local acceptability. The potential local sponsors indicated their preference for the 200-year alternative because of public health and safety, environmental perceptions, and economics. The cost comparison can be found in Chapter VII of the Main Report and is detailed in Appendix N. The 200- and 400-year projects have higher first costs than the lower level of protection; however, substantial flood damages are avoided by the higher levels of protection. By comparing the project costs vs benefits (flood

damages avoided), the larger projects are found to be more cost effective. The various alternatives are described in Chapters IV, V, and VI of the Main Report.

Under federal law, the federal government will pay for approximately 70 to 75 percent of the project costs, yet much of the potential cost of flood damages should a catastrophic event occur is likely to also fall on the federal government through the Federal Emergency Management Agency and others. Therefore, it is prudent for the federal government to participate the most cost-effective alternative.

1902 Your own estimates claim that over 160 years of flood protection can be had for a fraction of the cost.

RESPONSE: The closest project alternative described to the 160-year level project mentioned in the comment is the 150-year project. The costs of this alternative, which does not include an upstream detention dam, is summarized in Chapter V (\$477 million) in the Main Report and described in more detail in Appendix N. This cost compares with the approximately \$660 million for the 200-year tentatively selected plan. However, there are significant benefits realized in the 200-year plan which are not in the 150-year plan. On balance, the higher levels of protection are the most cost effective because of the flood damages avoided. The plan selection process, which includes economic considerations, is described in Chapter VI of the Main Report.

The Selected Plan has been revised in this report from the previous 400-year to the 200-year plan as requested by the local sponsors, SAFCA and the State Reclamation Board. The reason for this selection is described in Chapter 2, Project Description and Rationale, of the EIS but includes the economic reasons stated in the comment.

2130 In attending the ARWI Study Team meetings, we have heard the statement that a failure (after completion of work on the north levee of the Cross Canal) of the north levee near Verona would be more likely. Providing additional levels of protection for the Natomas area, while increasing the likelihood of a failure to an integral part of our flood control works is grossly discriminatory and is unacceptable to the landowners of Reclamation District 1001.

RESPONSE: Assuming structural levee failure criteria for the north levee of the Cross Canal similar to that for the south levee used in the feasibility study, the north levee would fail at lower stages than the south levee under existing conditions.

Consequently, raising the south levee would not necessarily influence the likelihood of failure of the north levee. Further, a 3,000 acre-foot detention basin in north Natomas has been included in the Selected Plan for hydraulic mitigation. This hydraulic mitigation is described in Appendix N, Chapter 1. The basin is intended to offset potential slight increases in the depths of flooding primarily north and east of north Natomas resulting from floodwaters not exiting the Cross Canal into Natomas for events greater than about the 200-year flood. Lengthening Fremont Weir for hydraulic mitigation was deleted from the plan.

1959 The DEIS/EIR fails to assess the impacts on the proposed Sacramento River Riparian Parkway currently under study by the State Lands Commission, County of Sacramento, City of Sacramento and Yolo County. Obliteration of more than 400 acres of riparian habitat and associated vegetation is certainly a significant impact that could offset the establishment of the parkway and the resources it is intended to protect.

**RESPONSE:** The report established without-project conditions based on existing conditions and on authorized and definitely established plans for future projects. Environmental impacts of any proposed parkway will need to be determined in the environmental document for that project.

2186 The limited time period provided for review of the report does the public a disservice. While EDF recognizes the need to act promptly to resolve the issues, the delay to date is largely the result of the Corps' failure to meet earlier deadlines. We note that it took the Corps almost eight months to respond to an August 13, 1990 letter raising issues concerning the Corps' technical analysis.

**RESPONSE:** The period provided for review is within NEPA guidelines and certainly was adequate for review by many people as evidenced by the many comments received. The time used to answer EDF's earlier letter was due to the many issues raised and the desire to provide a comprehensive and accurate response to the issues as well as the time required to reanalyze some of the issues raised.

1916 Your report does not even address the National Recreation Area.

**RESPONSE:** Refer to the section of this appendix on NRA comment responses.



2026 I understand that there are other flood control alternatives that are less expensive and less damaging to the sensitive American River habitat than the construction of a large centralized facility such as the Auburn Dam. I also understand that federal flood control standards can be met by using combinations of these other alternatives. I would like to know, in detail, why a combination of these alternatives is less advantageous than putting all your eggs in one basket (dam) in a known seismically sensitive area?

RESPONSE: Some other alternatives are less expensive but also provide much less benefit than the NED or 200-year alternatives. Various combinations of flood control measures into alternative plans are described in Chapter V of the Main Report. There is no minimum or maximum flood control standard (return period) established by the federal government for new projects. FEMA has established, for flood insurance purposes only, a goal of 100-year level of protection for those communities participating in the National Flood Insurance Program. They encourage higher levels of protection when possible. Studies have shown that a flood detention dam is more cost effective and less environmentally damaging than trying to achieve similar levels of flood protection from piecing together other measures. Refer to Chapter VII in the Main Report for a description of plan selection which compares the benefits and costs (economic and environmental) of each plan evaluated in detail and the reasons for choosing the 200-year level of protection plan.

2170 Magpie Creek is not listed within the Sacramento River Flood Control Project...The following paragraph should be added to the report: The diversion channel extends 7,400 feet from the Sacramento Northern Railroad...(see 12 June 1991 City of Sacramento letter for remainder of paragraph).

RESPONSE: Concur that Magpie Creek is a part of the Sacramento River Flood Control Project. However, an attempt has been made in the feasibility study and supporting documents to limit the study area and discussion to locations likely influenced by the American River or levee, channel, or related modifications associated with a potential flood control project. There would be no known impacts of the selected project on Magpie Creek.

2165 Maximum tensile stresses for the multipurpose dam exceed dynamic maximum of 750 psi. Will this be a problem for the 400-year dam?

**RESPONSE:** The Selected Plan dam has been structurally analyzed for the design seismic event using the extremely conservative assumption that a full flood control pool would occur at the same time as the maximum credible earthquake. This analysis determined that the dam could withstand these forces without a catastrophic failure.

1829 We are unable to determine the least environmentally damaging practicable alternative.

**RESPONSE:** Plan formulation, evaluation, and selection was based on procedures for water projects outlined in the Water Resources Council's principles and guidelines. In accordance with those principles and guidelines, each of the alternative plans includes mitigation features aimed at offsetting identified significant impacts. Chapter VI of the Main Report includes a description of the plan selection process. As indicated in that chapter and in the study conclusions (Chapter XI), the NED plan and the Selected Plan are the least environmentally damaging practicable alternative. The Selected Plan is similar to the NED plan and is also in compliance with the Clean Water Act, Section 404(b)(1).

1854 Appendix G, page 14 - The DEIS should state whether the footprint of the dam is within waters of the U. S. or is a special aquatic site.

**RESPONSE:** Appendix G has been revised to provide all required and pertinent information required for a Section 404 evaluation.

2102 Page DEIS 3-13, paragraph 2, sentence 1 - While it may be true that the operators may not achieve perfection in the use of the flood storage space in Folsom, even operating exactly by the Flood Control Manual may not achieve perfect use of the flood space...The actual flood control operations and releases may vary from the Flood Control Manual as actual hydrologic conditions dictate.

**RESPONSE:** Concur. EIS/EIR revised to indicate that some assumptions in the Reservoir Control Manual are somewhat variable.

2114 Page DEIS 8-10, paragraph 5 - As stated, the last sentence is not entirely correct. The Reclamation operates according to a modified D-893 flow release schedule and does not consistently meet D-1400 flow levels. The frequency of

falling below D-1400 recommended flows is greater in below-normal, dry, and critical water years.

**RESPONSE:** Concur. EIS/EIR revised to indicate information in comment.

1965 It seems apparent that the NED plan was displayed to meet the requirement of the law, but was not expected to displace the 200-year dam as the ultimately selected alternative.

**RESPONSE:** The draft report released in April had the 400-year project alternative as the tentatively selected plan based on a NED analysis which indicated this plan was the most cost effective. During the comment period, both potential local sponsors of the project, the State Reclamation Board and SAFCA, requested the Corps select the 200-year alternative as a locally preferred plan. The rationale behind selecting this alternative is described in Chapter VI of the main report. Essentially the reason for selecting the 200-year over the 400-year alternative was local acceptability. The potential local sponsors indicated their preference for the 200-year alternative because of public health and safety, environmental perceptions, and economics.

2197 Please explain how the TSP meets the critical objectives of the local sponsors to select "a plan which is neutral with respect to water and power options in the American River basin". Describe any aspects of the design or construction methods of the dam which would preclude its conversion to a permanent reservoir.

**RESPONSE:** See previous responses in the "multipurpose" category. The tentatively selected plan includes a flood control detention dam near Auburn which is approximately 430 feet high and capable of detaining 545,000 acre-feet of water during a design event. This dam is neutral towards developing the water and power interests of the American River Basin in that it is designed as a flood control-only facility, yet could be modified and expanded in the future to a multipurpose facility. Discussions of the multipurpose dam are contained in the EIS/EIR Chapter 17 and in Chapter VIII of the Main Report.

The intent in design and construction is not to preclude future expansion of the flood control dam. The issue of expansion with roller-compacted concrete is addressed in Appendix J and indicates it could be done. The State has also indicated their intention to establish a panel of experts to review the dam design and monitor construction activities to insure its expandability potential. Expandability could also be important for flood control, in that

there may be a need to further increase flood control storage. This process is briefly described in Chapter VIII of the Main Report. However, the Corps considers expansion of the flood control detention dam to be a major modification requiring subsequent environmental analysis and separate Congressional authorization.

1921 A small permanent hole at the bottom of the dam is acceptable.

**RESPONSE:** The Selected Plan provides a 200-year level of protection and includes a flood control detention dam near Auburn. As presently recommended, this facility will have an unregulated outlet which will drain the reservoir as quickly as the outlet opening allows. There will be emergency gates on the outlets which would only be used in case of a downstream emergency such as a levee failure or a life-threatening flood situation at Folsom Dam. A description of the operation of the outlet gates and an emergency scenario is contained in Chapter VIII of the Main Report.

2134 Discussion of other flood control levels, other than the 100-year level, is limited. Alternatives at the 200- and 400-year levels should have been presented, along with information on foundations and outlet works to determine "stageability".

**RESPONSE:** The plan formulation process analyzed a number of implementable flood control measures. A number were screened out due to economics or environmental considerations. The remaining were combined in 27 different arrangements to achieve various levels of flood protection. Several alternatives were described for both the 200- and 400-year levels of protection. These alternatives are described in Chapter V of the Main Report. The alternatives included upstream detention only and upstream detention combined with downstream levee improvements. The detention dam only alternatives were carried forward as part of the six projects analyzed in detail. The other alternatives were screened out because they were more costly and more environmentally damaging. The details are described in Chapter V of the Main Report, Appendix B.

Foundation properties for the selected damsite are presented in Appendix M. Essentially this site was deemed the most appropriate because of the information already available and work done by the Bureau as part of the previous multipurpose project. In addition, Appendix N contains information and costs for various dam design alternatives considered during preparation of this report including advanced features such as penstocks and intake structures. Since this project is a flood control-only facility, these advanced features were not included in the final recommended project.

2122 I recommend the following alternative, construct a 200,000-acre-foot cofferdam and install permanent pumps for Placer County Water Authority. This would at least make Folsom reoperation tolerable.

**RESPONSE:** Construction of a smaller structure upstream of Folsom was considered as an alternative. At the storage capacity indicated by the comment, the level of protection would be just over 100-year. Based on economics (i.e., flood damages avoided), this alternative is not as cost effective as the higher levels of protection afforded by the 200- and 400-year alternatives. This analysis is contained in Chapter V of the Main Report and Appendix B.

As to the water supply consideration, this project is not designed to augment water supplies in the upper American River canyon but to provide additional flood control to Sacramento as discussed in Chapter 1 of the Main Report under "Authority" for this investigation.

1947 Nonexpandable flood control dam should be included as an alternative. It should be the same as the TSP except for the use of a diversion tunnel rather than closeable gates. The main difference would be that it would preclude forever a multipurpose facility at Auburn.

**RESPONSE:** The tentatively selected plan is designed to neither advance nor preclude construction of a multipurpose facility at the site. Practically speaking, virtually any dry dam constructed in the canyon could be expanded to a larger structure and impound water; it would be a matter of the extent of modification and associated costs. Discussions on potential expansion are contained in Appendix J.

The outlet works are designed to let the reservoir drain through an uncontrolled release determined only by the size of the openings and reservoir head. The gates are to be only used in cases of downstream system emergencies. The operational description of the gates is contained in Chapter VIII of the Main Report. Use of the diversion tunnel would not necessarily preclude expansion of the dam in the future. The tunnel could be modified to allow it to be closed, or the tunnel could be permanently plugged and alternate outlet sluices constructed through the dam.

2099 Western States is open to consideration of a true dry dam, one that will not inundate above No Hands Bridge, and one which in

combination with other features will provide improved flood protection.

**RESPONSE:** The No Hands Bridge is within the potential inundation pool of the 200-year detention dam included as part of the Selected Plan. However, this facility is a flood control detention dam which would impound water only during the flood season and therefore should not physically affect a race run outside the typical flood season from November through April. The bridge could be subject to periodic inundation but would not be subject to damages from high velocity flows.

1878 We could possibly accept a structure like the old cofferdam, as long as it does not contain gates. Protection of the river canyons is important.

**RESPONSE:** The cofferdam constructed in conjunction with the previous multipurpose project was not designed nor intended to be a permanent structure. When the 1986 storm occurred in the American River Basin which exceeded the cofferdam's capacity, it failed as designed. Assuming the comment is in favor of a smaller structure which could be an earth structure, several smaller flood control detention dams were included in the original 27 alternatives considered. Chapter IV in the Main Report displays flood control dams capable of providing 100- and 150-year levels of protection. These alternatives were screened out primarily because they were not as cost effective as the higher levels of protection afforded by the larger structures. The 200- and 400-year alternatives avoid significant flood damages for modest cost increases.

The gates proposed on the 200-year flood control detention dam are emergency gates, only to be used in case of a downstream emergency in the system. Their operational description including a potential scenario for their closure is contained in Chapter VIII of the Main Report. During normal operations, the facilities' outlet and reservoir drawdown are uncontrolled.

1172 Due to the lack of consensus, local officials, the Reclamation Board, and the Corps need to reconsider their proposal and provide immediate protection for Sacramento by reoperating Folsom and providing necessary levee improvements.

**RESPONSE:** The State and SAFCA have been working with the Corps to identify the problem and various alternatives which address it cost effectively and with the community's support. Both the State Reclamation Board and SAFCA's Board of Directors have recommended the Corps pursue the 200-year plan, including construction of a

flood control detention dam, as the Selected Plan. In addition, the Corps has been analyzing the potential reoperation of Folsom Reservoir as a separate project which could be implemented as an interim measure until completion of a dam. SAFCA also intends to commence construction of the Natomas levees in advance of the federal project in an effort to expedite flood protection to population and property at risk in Natomas.

2203 The Corps' assessment in Appendix B shows there is some incremental floodflow protection benefits to reoperation by increasing the recurrence magnitude of the 115,000 cfs objective release from 63 to 94 years.

RESPONSE: Reoperation of Folsom Reservoir is one of the flood control measures which was analyzed and carried forward to combine with other measures in potential project alternatives. By itself, this measure can increase flood protection but only by a modest amount. On the other hand, the potential adverse environmental impacts are high for this modest increase. As the level of protection is increased by allocating more space for flood control, the impacts on water supply, recreation, and the environment are also increased. For these economic, environmental, and acceptability reasons, this alternative was screened out in the selection process. The impacts of Folsom reoperation are described in Appendix B and in Chapters IV and V of the Main Report as well as sections of the EIS/EIR.

2112 Page DEIS 4-5, paragraph 2 - A counterstatement that describes a scenario wherein the proposed project is not authorized should be included.

RESPONSE: The conditions outlined in this section of the EIS/EIR pertain to the A-99 status of the expanded American River floodplain as regulated by FEMA. If all the conditions can be met, FEMA will continue the A-99 status until such time as improvements are complete or reoperated to remap areas out of the 100-year floodplain. If no project is authorized by Congress for the mainstem of the American River, the continuance of the A-99 status is in question. This scenario has not been considered by either FEMA or the local governments in any discussions. At this time discussing such a scenario is premature and any conclusions would be purely speculative.

44 You rejected an offstream storage facility with a cost of \$100,000,000 because real estate development is expected to

occur where the facility would be built. This is not a valid reason for rejection.

2111 The flood retention/overflow basin could greatly reduce the need for levee work along Arcade Creek and Dry Creek. Additional benefits from this alternative could include waterfowl/wetland restoration, fishing lakes, riparian habitat restoration, reduced air and water pollution, etc.

**RESPONSE:** The offstream storage alternative involves construction of a detention facility near Folsom to augment flood control storage at this site. However, the amount of storage space necessary to make a significant difference in the downstream protection is not available. In addition, this alternative was also screened out because of the high cost associated and the need to displace existing development and its impacts on future development in the region. These impacts and reasons for dropping this measure are described in Chapter IV of the Main Report and Appendix B.

In addition, this alternative would not affect the levee work needed in the Arcade and Dry Creeks watershed. The objective release from Folsom would remain at 115,000 cfs requiring the same Natomas levee work described as part of the Selected Plan.

2189 The out-of-basin diversion concept was also rejected. A detailed cost estimate should be performed. With respect to the environmental damage, it is interesting that the Corps finds damage from storage of floodwaters in the Deer Creek basin significant, while damage to the North and Middle Forks of the American (a more unique resource) is all but ignored.

**RESPONSE:** The out-of-basin diversion alternative is considered in Chapter IV of the Main Report and Appendix B. Essentially, this alternative was screened out because initial hydraulic analysis indicates there would be significant impacts on the Deer Creek and Cosumnes River basins as well as the east Delta which would require more costly measures than those being considered.

907 Corps should spend more time on their mission of repairing and shoring up Delta levees.

**RESPONSE:** The purpose of this study was to consider alternatives to provide additional flood protection along the American River and for Natomas. Flood protection for the Delta is the subject of other studies.



1111 I wanted to see more in-depth detailed analysis of the change in the spillway at Folsom Dam.

2191 It appears that lowering the spillway should be done to insure Folsom's safety regardless of what other option is chosen. An analysis is needed because lowering the spillway and increasing flood control storage in Folsom by 155,000 acre/feet is the second least expensive way to obtain 100 year protection.

**RESPONSE:** The alternative of lowering the Folsom spillway to allow more efficient use of the reservoir for flood control operations is described in Chapters IV and V of the Main Report including a cost estimate. It is also described in Appendices B and N. Essentially, the Corps' analysis indicates lowering the spillway could increase the level of protection from a 63-year to about a 70-year. Therefore, it must be combined with other measures to attain a 100-year level of protection. It was considered a viable measure and combined with several others in some of the original 27 alternatives described in Chapter V.

2106 Page IX-5, paragraph 4, and page XI-3, paragraph 2 - These paragraphs appear to be inconsistent. The first indicates maintenance by the United States. The second indicates maintenance by the nonfederal sponsor.

**RESPONSE:** The operations and maintenance of the completed project will be done by the nonfederal sponsor at no cost to the federal government. This provision is included in both Chapters IX and XI of the Main Report.

2162 Appendix J - Was the feasibility study scheduled for completion in October 1990 completed? What were the results? Does it affect the EIS?

**RESPONSE:** The Feasibility Report referenced in Appendix J is the American River Watershed Investigation released April 1991.

1963 The dam must not be authorized without the concurrent deauthorization of the Auburn/Folsom South Unit.

**RESPONSE:** The Corps' position is that the American River project can be authorized by Congress without a concurrent deauthorization of the Auburn Dam multipurpose project or the accompanying Auburn/Folsom South Unit.

2110 The Natomas cross levee discussion states that "the proposed cross levee would not act as a barrier to urbanization. On completion of it, the unprotected land could be cheaply removed from the 100-year floodplain through repair of the PGCC and NCC. This implies that without the federal project, 100-year protection for Natomas will be achieved in the near future by State or local concerns. Thus, the future without-federal project would be 100-year protection by State or locals therein changing the entire project analysis.

RESPONSE: It is true that under the cross levee alternative, Natomas lands north of this levee could be economically removed from the floodplain by work on the PGCC and NEMDC. However, this is only true because as part of the cross levee alternative, control of the American River is achieved through additional upstream storage sufficient to control releases from Folsom to non-damaging levels. In a no-project scenario, there is no control of the American River and 100-year outflows from Folsom would be on the order of 230,000 cfs. In this case, removing Natomas from the floodplain would not be easily achieved because of the additional work needed to protect the area from these extreme American River flows. Therefore, without a project, removal of Natomas from the floodplain would not likely be achieved.

2186 Many of the benefits attributable to an upstream detention dam could be achieved in a more cost-effective way with nondam measures, a fact the Corps recognizes in its draft report. These nondam options are "practicable alternatives" as used in Section 404(b)(1) guidelines, precluding implementation of the proposed upstream dam options.

RESPONSE: The Corps does not recognize that many of the benefits attributable to an upstream detention dam could be achieved in a more cost-effective way with nondam measures. The 400-year plan was identified as the most cost-effective level of flood protection for the Sacramento area. Under planning criteria established by the Water Resources Council principles and guidelines, while other alternatives have a lesser cost, the 400-year plan provides the greatest increment of flood damage reduction for each dollar spent. Each alternative included measures to mitigate adverse impacts to environmental resources. With or without these measures, nondam alternatives have been determined to be more environmentally damaging. Further, the nondam alternatives would be less economically efficient, more threatening to public health and safety, and less acceptable to the nonfederal sponsor. For these reasons, the nondam options are not practicable under 404(b)(1) guidelines. Moreover, none of the downstream alternatives achieves the nonfederal sponsors' project purpose of providing the Sacramento area with a minimum of 200-year flood protection.

2153 The study should consider treating the Natomas area as a separable element. The dry dam would make little sense if flood damage reduction measures for Natomas were formulated and analyzed separately.

**RESPONSE:** Studies showed that Natomas could not be protected from flooding without major features constructed along the main stem American River and elsewhere to mitigate adverse hydraulic impacts created by the Natomas protection features. Alternatively, providing increased flood detention in the American River watershed would result in a significant reduction in flood damages in Natomas. Further, even without Natomas benefits, a flood detention dam would be economically feasible. Details of this analysis can be found in the Economics Appendix (Appendix C).

1111 I wanted to see a more detailed analysis of the 1986 flood and how much was due to human error. I also wanted to see a study on how much human error has historically been involved in flood events in this area and how we can minimize flood events by minimizing human error.

**RESPONSE:** A detailed analysis of the 1986 flood was prepared by the Bureau of Reclamation. Documentation of this analysis can be found in their publication "Preventing a Crisis: The Operation of Folsom Dam During the 1986 Flood". The Corps has found, in its investigations, that historically, when flood control releases greater than 20,000 acre-feet were made from Folsom Reservoir, storage encroached 80,000 acre-feet, on the average, into the flood control space. This encroachment occurs because of the complexity of making real-time decisions in the operation of the reservoir. Reservoir operations consider the inexact sciences of forecasting of incoming storms, precipitation amounts, and basin runoff. Additional modeling was carried out to determine the sensitivity of operations should this encroachment not occur. It was found that if perfect operations could be carried out (thus eliminating any encroachment), the improvements in the level of protection which would result would be minimum. More detail can be found in the Reservoir Regulation Appendix (Appendix L).

1182 What percentage of the letters and comments received from the public have favored building the dam?

**RESPONSE:** Statistics have not been compiled on the number of comment letters received favoring building the dam. A large number of comments were received that indicated support for not building a detention dam. Also, a large number of letters favored building

a multipurpose facility in contrast to a flood detention dam. This was anticipated given the history of the American River canyon. Comments in support of a dam varied. Comments in support of a dam were generally qualified in some manner. In some cases, support for a dam was indicated but the size was questioned.

1930 Cumulative impacts to fish, plant, water supply, water quality, recreation, wildlife, endangered species, and socioeconomics should be addressed by both the ARWI and Folsom reoperation.

RESPONSE: Cumulative environmental impacts which are roughly defined as "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably future foreseeable future actions . . ." must be entitled Cumulative Impacts and addresses this issue. Likewise, the Folsom reoperation document will also address the cumulative impacts in a like fashion.

1835 The DEIS should state whether the Corps examined different tandem operations (dry dam and Folsom) scenarios and what the potential cumulative environmental impacts of these might be.

RESPONSE: Appendix L describes the operations of the Folsom and Auburn Reservoirs. A number of designs were analyzed for each level of protection to optimize the size and operation of the dry dam and are described in this appendix. As to the potential impacts of the tandem operation, Chapter VII states Folsom Reservoir will be operated in essentially the same fashion as today. The only impact is with Auburn Dam in place, the peak floodflows will be regulated resulting in less fluctuation in Folsom Reservoir. This will result in sustaining the objective release for a longer period of time to vacate the storm runoff volume from a major event. Data is not available to quantify the occurrence interval of this sustained flows or its impacts. However, since this would only occur during major events which are very rare, the cumulative impacts would not be felt within the 100-year planning parameter of this project.

1835 The revised EIS should clearly demonstrate that tandem operation of the two dams wouldn't exacerbate and already complicated flood control system and not worsen water quality in the American and Sacramento Rivers and the San Francisco Bay/Delta.

RESPONSE: The operations of the reservoirs is described in Chapter VII of the Main Report and Appendix L. Essentially, the operation

of Folsom Reservoir will not be changed by this project. The effect of the upstream detention dam will be to contain the peak storm runoffs, thus minimizing the reservoir fluctuation in Folsom. Outflow from Folsom would be modified to account for the additional storage. Because of the reduced peak but same runoff volume, releases from Folsom will be sustained longer than under current conditions, but within the objective release. Therefore, the Selected Plan will have a positive benefit on the overall flood control system by reducing the peak runoff from the American River Basin and allowing Folsom to maintain its objective release.

The Selected Plan does not affect the flood control storage at Folsom and does not add more water storage to the existing system. Impacts on water quality and mitigation are described in Section 6 of the EIS/EIR.

1824 Under CEQA, all impacts must be assessed, disclosed, allowed public review, and mitigated for. Other impacts you did not address include: relocation of Auburn-Foresthill Rd; construction of diversion tunnel; 80 percent of dam access roads; 25 percent of Hwy 49 improvements.

RESPONSE: All road relocations required by construction of the Selected Plan and other alternatives have been analyzed and included in the document. They can be found in Chapter V of the Main Report with supporting information in Sections 3 and 11 of the EIS/EIR as well as Appendix B.

Construction of a diversion tunnel is not proposed as part of the Selected Plan. A diversion tunnel constructed as part of the previously authorized Auburn Dam multipurpose project is still in place, but is not proposed as an outlet for the detention dam.

All construction-related direct impacts and mitigation are included in the document and are described for each pertinent topic in the EIS/EIR. In addition, Chapter VII of the Main Report summarizes the construction-related impacts.

The relocation of Highway 49 required by the Selected Plan is described in Chapter VII of the Main Report. Supporting information can be found in Chapter VIII of the Main Report, Section 11 of the EIS/EIR, and Appendix B.

1851 The Corps discounts the benefits of anticipatory releases based on forecasting. There may be potential for advanced flood management programming, regardless of the alternative flood protection selected.

**RESPONSE:** The use of improved flood forecasting in the operation of Folsom Reservoir is described in Chapter IV of the Main Report. This measure was not retained because of the inaccuracy in using it for long-range forecasting to operate a multipurpose reservoir. Releasing too much water could result in significant adverse impacts on other uses of the reservoir. It is true that as technology is advanced in this area, this could become an integral part of the flood control effort for the American River Basin. If implemented in the future, it would allow the reservoir operations to be modified or simply provide a greater safety factor in operating the reservoirs.

1870 Criteria used by Corps is inconsistent with the federal principles and guidelines, particularly the absence of an analysis of regional economic benefits and other social effects.

**RESPONSE:** In analyzing the various flood control measures and combining them into the 27 alternative plans, the Corps used the principles and guidelines outlined by the Water Resources Council. These guidelines require selection of the plan which reasonably maximizes net national economic development (NED) benefits. The costs and benefits for each alternative were calculated, and the alternatives including an upstream detention dam were found to be the most cost effective by maximizing the benefit/cost ratio.

As to the regional economic benefits and other social effects, the EIS/EIR includes Chapter 15, Socioeconomics, and Chapter 14, Recreation. Other chapters of the EIS/EIR address various environmental considerations including project impacts and mitigation.

1197 The flood control project should not require long-term operation of Folsom Lake in a manner which would reduce its storage capacity. If feasible, the project should be designed to increase that capacity.

**RESPONSE:** The Selected Plan includes a new flood detention dam near Auburn and work around the Natomas perimeter but does not include any modifications to the flood control storage at Folsom Reservoir. On the other hand, the project also does not include any water storage enhancement either at Folsom or at the proposed detention dam. The Corps is working on a study for the temporary reoperation of Folsom which would serve to increase flood protection for Sacramento until additional permanent upstream storage is available. The draft of this report is due to be released in early 1992.

2100 In addition to reducing water supply yield, power generation, and dependable capacity of the CVP, San Juan Suburban Water District and El Dorado Irrigation District, which obtain water directly from Folsom Reservoir, might experience increased pumping costs because of lower reservoir water levels as a result of Folsom reoperation.

**RESPONSE:** Additional pumping costs because of the lower reservoir level would be realized under the reoperation alternative. Mitigation for this impact would be to reimburse the appropriate agency for these costs. This is described in Chapter V and shown in Table V-12 of the Main Report.

1206 Since we are going to be reoperating Folsom, we should record the environmental effects for several years and determine if they are liveable, rather than just presuming that the studies are correct.

**RESPONSE:** It would be a desirable situation to be able to use measured data in assessing environmental impacts of project alternatives. However, because the associated impacts are heavily dependant on the amount of rain and snow produced in any given year, it would take a long period of record to gain a true picture of the overall impacts associated with permanent reoperation. Because of the significant public safety issue, we cannot afford to wait and gain the benefits of such a study. The need for flood protection is pressing and forces us to proceed with the best available information we have to inform the decision-makers of the potential impacts.

1958 The "no project" alternative should include an analysis of all current beneficial uses of Nimbus\Folsom water and storage capacity, and the extent that existing ag water, municipal water and\or power benefits would have to be modified to provide adequate flood control and instream fishery habitat benefits. Many modifications could be made at no long-term cost.

**RESPONSE:** The alternative described is really a no-dam alternative since it involves increasing flood protection rather than a no-project alternative. The comment closely resembles the levee/storage alternatives described in Chapter V of the Main Report. It is true these alternatives are less costly and do not include a new flood control detention dam; however, they also do not provide a high level of flood protection and thus do not provide the same level of benefit. Using the plan selection criteria described in Chapter VI, these plans are screened out.

The higher levels of protection are more cost effective when analyzing both the costs and benefits.

2185 The Corps' analysis also assumes water supply will take precedence over instream flow needs in the lower American River and that any shortfall resulting from reoperation would be incurred by instream uses. However, FWS points out one way to mitigate for reoperation is insuring adequate instream flow requirements are met.

2117 Reoperation of Folsom in a manner that avoids flow and temperature impacts on fish and wildlife resources, provides 150-year protection and reallocates water supply may be an environmentally suitable alternative that should be considered.

2117 Page DEIS 8-63, paragraph 2 - Further discussion is warranted here. FWS evaluated the 150-year plan which includes reoperation of Folsom Reservoir. This alternative would require Congressional reauthorization. In addition, full assessment of reoperation requires full analysis of CVP and Bay-Delta impacts.

**RESPONSE:** The 150-year alternative which includes the permanent reoperation of Folsom Reservoir is described in Chapter V of the Main Report. Table V-12 within this Chapter discusses the various impacts associated with reoperation and proposed mitigation. These impacts include both economic losses in water and power supplies to the CVP and environmental impacts during some years of lower water levels and associated lower releases.

The FWS has reviewed the alternative and recommended a mitigation plan which includes maintaining minimum flows and reserving a block of water in Folsom to maintain lower temperatures in the reservoir to sustain downstream fisheries. These recommendations are displayed in Chapter 8 of the EIS/EIR. To implement these recommendations would necessarily impact operations at Folsom and affect water over which the Corps has no authority. These modifications would require Congressional authorization and potentially require a separate EIS/EIR to properly assess the impacts of revising the CVP operations. Refer to Chapter 8 of the EIS/EIR for a more detailed discussion on the FWS recommendations and their impacts.

1901 Another report was authorized by Congress, yet you never mention it or the fact that it contained a plan that didn't damage the canyon.



**RESPONSE:** The only other project currently authorized by Congress in the American River canyon is the Bureau of Reclamation's multipurpose Auburn Dam project which was started but has never been completed. This project is described in Appendix I. Authorization for this Feasibility Report is discussed in the Executive Summary of the Main Report.

1094 The DEIS/DEIR is deficient because it doesn't describe and quantify environmental protection benefits, i.e., environmental value losses prevented by construction and operation of the project.

**RESPONSE:** Both the Main Report and EIS/EIR have been expanded to include the environmental consequences of flooding. These impacts include release of toxic wastes, effects on endangered species, socioeconomic effects and impacts on recreation among others. By construction and operation of the Selected Plan, these impacts would be avoided. A description of the impacts are provided in the appropriate chapters of the EIS/EIR.

1976 Study discusses impacts with alteration of Folsom Reservoir but the study fails to analyze projectwide impacts which would reasonably occur as a result of several of the alternatives described.

**RESPONSE:** The study does consider the impacts of several flood control measures combined into various plans such as Folsom reoperation combined with higher objective releases and downstream levee modifications. The impacts of these combination alternatives are included in Chapter V of the Main Report and throughout the EIS/EIR. These impacts are described, quantified where possible and mitigation measures included for each flood control plan analyzed.

## PROJECT PURPOSE

- 465 A flood control-only dam is simply a foot in the door for eventually building a bigger dam.
- 363 The project seems like a ruse for conversion to a water supply dam.
- 256 I do not believe a dam will be built and then only used in times of flood.
- 123 This so-called "flood control" project will eventually be turned into another irrigation and hydroelectric project.
- 45 You developed an alternative which is the closest you could under statutory authority to building a multipurpose dam.
- 855 I feel the dam was overdesigned so that it could be converted to a multipurpose dam with the federal government footing the bill.
- 1828 The proposed dam will not remain dry very long as designed, leading to the loss of the canyon and its recreational, historical, wilderness values.
- 1182 The Corps is misleading the public by calling this a flood control project and by failing to adequately address the inevitable impacts. It is clearly designed to be used as a storage facility, yet the Feasibility Report only occasionally alludes to that.
- 1096 The sole justification for building a huge, expandable dam is so that it can later be used as a multipurpose dam.
- 1176 You don't have a consensus because we don't have any trust that a dry dam is truly what we're talking about and that will be our message to Congress.
- 3 We all know this dam will be used for water storage someday.
- 1099 When the dam is completed the federal government, particularly the Bureau of Reclamation, will insist that it be converted to a multipurpose dam, perhaps enlarged and shoved down Sacramento's throat.
- 190 The gates and expandable features ensure that upstream canyons will be permanently flooded sooner or later.
- 2073 The flood control dam is actually intended as a multipurpose dam.

1930 The proposed dam advances a multipurpose because it is gated and can be expanded. Expansion for water and power is implied. Therefore, the project is not neutral to water and power.

90 I would hate to see this beautiful canyon flooded which would surely happen if this huge and expensive plan for a dam is carried out.

**RESPONSE:** As explained in various locations at the Feasibility Report, the primary purpose of the Selected Plan is increased flood control primarily to existing development. The Corps remains neutral on the issue of the multipurpose dam.

639 I accept that some form of flood protection is needed but I am opposed to an expandable dam. A dam for emergency storage is acceptable but I would like to see nondam alternatives explored.

**RESPONSE:** Nondam alternatives to provide facility low levels of increased flood protection are discussed in Chapter V (Alternate Plan) of the Main Report and in Appendix B (Plan Formulation).

759 Due to accelerating energy costs, Auburn Dam's electric power rates would be highly competitive on an economic pay-back basis if construction began this year.

**RESPONSE:** Comment noted.

114 I can't see any benefit to the dam except for developers and landowners, not to the general public.

414 Pressure to construct a dam is not coming from those who seek reasonable flood control but rather those who want unlimited growth or those whose real agenda is an expandable dam.

679 Reservoir can be used as an excuse to move rapid development in the area already pushing carrying capacity.

88 Dams to protect stupid development are just plain stupid.

1827 The plan will benefit large development interests at the expense of the general public.

698 Flood control will only benefit the developers.

15 I am dismayed when I consider who will profit from the dam--  
Central Valley developers.

517 I believe the proposed Auburn Dam is unnecessary and would  
damage the canyons only to allow development of areas that  
should not be developed.

295 The dam basically helps big developers at taxpayer's expense.

505 This dam will not solve our water problems but will result in  
poorly planned rapid growth. Water conservation and education  
is the answer.

**RESPONSE:** The purpose of the Selected plan is to provide  
increased flood protection to existing development within the  
floodplain. The "Land Use" Chapter of the EIS describes the  
existing development within the floodplain. Protection is afforded  
to all within the floodplain, not just development interests. The  
Selected Plan will, as a secondary impact, induce growth in  
particular areas within the Sacramento region. These impacts are  
discussed in the Growth-Inducing Impacts Chapter of the EIS.  
Mitigation for these future impacts, if and when they may occur,  
are the responsibility of the nonfederal sponsors which have  
responsibility to approve or disapprove of such future growth and  
impacts.

490 We wouldn't need the power if we as a people would adopt  
energy conservation measures.

1075 Why not give Congress the alternatives that would be available  
for flood control rather than alternatives for delivering  
water to the Central Valley Project, which is your real  
purpose of the project?

207 An end to water waste is the solution not the destruction of  
the wild, irreplaceable American River.

**RESPONSE:** Water supply and/or hydropower generation are not  
features of the Selected Plan.

38 It's a shame to spend millions on research and studies, then,  
when completed, start another study. Let's get on with the  
real problems of flood control and water supply and build the  
Auburn Dam.

891 Because this dam has no capacity to generate electricity, it  
cannot pay for itself. It will remain unused 99.73 percent of

the time (assuming use of 20 days every 10 years). It is totally useless for recreation, water storage, and power.

**RESPONSE:** Please refer to comments and responses for the category on Multipurpose Dam, in this Appendix. The Auburn Dam Project is federally authorized for construction. Even so, issues related to the project have prevented construction for many years, and will likely continue to do so. The flood-related problems of the Sacramento area require that flood control measures proceed in order to assure adequate protection of life and property.

72 I object to the use of federal funds (including my own tax dollars) to build a dam that will not contribute significant water and electricity relative to the amount we could save by conservation.

**RESPONSE:** Comment noted.

863 By building this dam, the Corps is not conserving money, nature or land. As a conservationist, I am upset by this.

**RESPONSE:** Average annual flood control benefits would exceed costs for the Selected Plan by nearly 3 to 1. Impacts to environmental resources would be relatively minimal and offset by appropriate mitigation features included in the plan.

1121 I question the need for a dam. Is the flood protection it offers truly necessary?

847 It seems stupid to spend so much money on something not needed.

111 Why do you feel this dam is necessary?

337 This dam is not necessary to provide flood control for Sacramento and other points downstream.

717 I question whether the Auburn Dam is really needed. I don't see why you need to destroy an area that over half a million people enjoy yearly.

864 This dam is unnecessary.

862 I am not willing to sacrifice the North and Middle Forks of the American River for an unnecessary project.

493 Your proposed project seems irrelevant and insane.

858 We do not need to destroy what little wilderness we have left for housing, money, or anything.

251 There seems to be no reason to build the dam other than to keep you underlings busy.

**RESPONSE:** Documentation of the flood problem is discussed in Chapter III of the Main Report. Alternatives necessary to provide various levels of flood protection are explained in Chapter V of the Main Report. Justification for selection of the recommended plan is provided in Chapter VII.

1913 We should not forget how the building of the Auburn Dam has been put forth for economic gain and political power.

1901 You care little for anything other than erecting your giant structure.

1905 I'm curious about the Corps' credibility because of the Kissimmee River in Florida, the New Melones Dam, and the 1986 Folsom operation.

1904 I don't trust the report or the Corps.

1964 Until an independent analysis has been done, we continue to have little confidence that we are dealing with real facts instead of manufactured information designed to further the goal of continued Corps employment opportunities in dam building.

**RESPONSE:** Comments noted.

1084 There are already several dams on the American River, which if repaired and used correctly, replace the need to spend so much money on a new dam.

1880 We can't keep our old dams in shape, why build another one?

**RESPONSE:** Use of existing reservoirs to the American River watershed are discussed in Chapter IV of the Main Report and Appendix B. Briefly, use of these facilities for flood control was found to be relatively ineffective and costly.

842 The dam isn't needed since flood control can be achieved inexpensively by strengthening the levee system and reoperating Folsom.

**RESPONSE:** See response to similar comments under the Plan Formulation Section.

491 Your services can be very well used in many other areas, e.g., needed bridges and highway construction.

62 Let the government first provide a decent education, adequate health care, housing, detoxification of polluted areas; rebuild the infrastructure of transportation first, then maybe this project will have a place in the public agenda.

**RESPONSE:** Comments noted.

605 Most of the areas which flooded in 1986 will not gain flood protection from this project. These areas include Citrus Heights and Roseville along Dry Creek. Yet they will be assessed for 400-year protection for other areas.

**RESPONSE:** Specific areas of benefits are shown in Appendix C (Economics). Much of the area along lower Dry Creek that flooded in February 1986 would not flood with the selected project in place.

589 The risk of flooding is already small. In addition, the electricity that would be generated by damming the river would be too expensive to use.

**RESPONSE:** Hydrologic studies conducted following the flood of 1986 have shown that the risk of flooding to the Sacramento area is significantly large when compared to other highly urbanized areas of the United States provided in part by high levees. The flood detention dam and related features of the Selected Plan will greatly increase the level of flood protection to Sacramento. No hydroelectric facilities are included in the plan.

996 I am opposed to this plan since a 400-year flood protection is too extreme for arid California.

**RESPONSE:** Please refer to Chapter VII of the Main Report for a description of reasons for selecting the plan to provide a high level of flood protection.

984 This dam is unneeded. It is ridiculous to build a dam in a drought to stop a flood that isn't coming. We couldn't possibly get enough rain for a flood the size the dam is designed to hold.

2082 Either the Corps has proposed too high a level of protection or the dam is really a multipurpose and is a misappropriation of funds.

**RESPONSE:** Please refer to the description of Flood Problems (Chapter III) in Main Report and reasons for plan selection in Chapter VI of report.

876 We need open and free rivers to allow the ecosystems to take care of themselves.

1763 I question that all flooding downstream is bad. Research supports that oaks require a period of flooding for regeneration. Riparian forests evolve under a regime of flooding.

1885 Something is going on around here that I don't think people know about. Placer and El Dorado Counties sold water four years into the drought.

**RESPONSE:** Comments noted.

668 The Corps has the ability and responsibility to help with a reasonable long-term solution that protects our valuable natural resources. Building another dam is a typical short-term fix.

**RESPONSE:** The Selected Plan would provide a high level of flood protection to an area of over 100,000 acres in Sacramento. The project life which is utilized for economic studies is 100 years. The actual life would be much greater.

518 I feel there are less costly, better effective ways of controlling water usage - Northern California - to concentrate on what we have as far as water control.

**RESPONSE:** Reference discussion of Flood Problems, Plan Formulation, and Special Topics (water supply) in Chapters III, V, and VIII, respectively.



1963 We believe that using public safety to justify jeopardizing scarce riverine values is a perversion of the faith and trust invested in public agencies.

1974 There is no support for the contention that raising levees will significantly degrade the parking while operation of a dry dam would have no effect on vegetation. This is an example that building the dam at Auburn was a predetermined conclusion.

1984 The project clearly states that public safety is a goal but fails to place safety in its proper perspective. (This is assumed to be the result of attempting to justify the Corps' predetermined solution.

**RESPONSE:** Reference Chapter VII on Plan Selection and EIS/EIR for a discussion on relative tradeoffs in public safety versus level of protection and environmental impacts of the various alternatives.

2160 The 200-year dam should be designed to be expanded for the future.

**RESPONSE:** The revised Selected Plan (200-year level of flood protection) is proposed so that future conversion to a multipurpose facility is neither precluded nor advanced.

1984 As water and recreational aspects are only incidental benefits, not part of project goals, they should not be included as part of project purpose (see Chapter 2, pg. 2-1).

**RESPONSE:** Part of establishing the planning objectives explained in Chapter IV (Plan Formulation and Flood Control Measures) in the Main Report is the basic study authority. This authority (see Chapter I of Main Report) directs evaluation of incidental benefits. Also recreation facilities consisting of trails and supporting features will be provided in Natomas and are sponsored by nonfederal agencies. Thus, recreation is a full project purpose along with flood control.

## **REAL ESTATE**

- 2106 It is indicated that the Corps would act on behalf of the nonfederal sponsor to obtain jurisdiction over the lands currently held by USBR which are needed for the dam and embankment. Would the dam have to be purchased back from the sponsor in order to construct a multipurpose dam?
- 2105 What happens to the flowage easements if there is a multipurpose dam? Or what happens if land is needed back to construct the multipurpose dam. The details regarding the disposition of Reclamation lands is unclear.
- 2107 Page DEIS 17-7, paragraph 4 - It is stated that "Nor would the TSP affect the status of the multipurpose project with respect to project lands in the Auburn area." This statement does not agree with the statements made on page VII-2 and page IX-5.
- 2107 Page DEIS 17-7, paragraph 5 - This indicates interfederal agency transfers of land required for the flood control project. This statement appears inconsistent with statements on pages VII-2 and IX-5.

**RESPONSE:** Pursuant to the Water Resources Developmental Act of 1986, the nonfederal sponsor is responsible for acquiring and making available for construction all lands, easements, and rights of way needed for the project. In the case of the dam and detention basin, approximately 100 acres are needed in fee title for the dam facilities and 5,932 acres are needed for occasional flooding, rights which will be acquired by easement. Since the USBR owns the land needed for the dam facilities, the Corps instead of the nonfederal sponsor will acquire the rights to this land, probably through a joint use agreement. Title will remain with the USBR. The nonfederal sponsor will acquire flowage easements for the detention basin from USBR and private landowners, with no change in the underlying fee ownership of the land. The Corps or the nonfederal sponsor will obtain rights of way equivalent to a flowage easement on those lands under the jurisdiction of BLM. In no event will federal lands change ownership as a result of the Selected Plan. Flowage easements and rights of way will remain intact whether or not a multipurpose project is built or that authorization is abandoned in the future.

Please refer to Appendix O, Real Estate, and Chapter VII for additional detail.

- 2105 Page VII-2, paragraph 4 - A breakdown of the 75 percent of federally owned lands should be provided, showing how many acres are controlled by USBR, BLM, USFS, etc.

RESPONSE: Of 6,032 acres needed for the dam and detention basin, 755 acres are in private ownership and 8 acres are owned by the State of California. The remaining 5,267 acres are in federal ownership. The USBR has jurisdiction over approximately 5,060+ acres of the federal land with the remaining 200+ acres under the jurisdiction of BLM. The USFS does not hold any lands within the Selected Plan.

Please refer to Appendix O, Real Estate, and Chapter VI for additional detail.

2106 Appendix O, plate 2 - USBR and the State of California Department of Parks and Recreation are working on an Interim Resource Management Plan for the Auburn State Recreation Area involving lands which are under USBR and BLM jurisdiction with the project boundary. The EIS/EIR does not address the impacts upon current or future management of these federal lands.

RESPONSE: Except for periodic floodflows detained under the Selected Plan, such recreation uses and plan for recreation management can continue and will not be adversely affected by the Selected Plan. No lands currently under federal ownership will change ownership as a result of this project.

Please refer to Appendix O, Real Estate, and Chapter VII for additional detail.

## RECREATION - LOWER AMERICAN

- 1997 TSP would benefit recreation, protect downstream areas from flooding; permit Folsom Lake to maintain a higher water level increasing lake areas for recreation use; would allow continuous releases of cold water into lower American, improving water quality, and enhancing environment for resident fish and species.
- 1997 TSP would prevent flood damage to American River Parkway for less than 400-year floods. Would preserve recreation opportunities and decrease maintenance costs along parkway.
- 2140 Page H-9 - The appendix references a 1983 survey resulting in use of the Parkway of 5.5. million in 2020. This is based on material generated by an outside consultant, not a county agency. The annual use figures were estimated based on population growth but assumed use missed by survey is speculative.
- 2140 While rafting is a controlled access activity and should have a reduced percentage of total uses, the consultant assumed that there was a larger group of boaters missed in the survey than any other user activity. Table H-2 presents a more realistic percentage breakdown among the total user levels. There are no reliable estimates for use levels along the lower American River and no importance should be attached to any without qualifications.
- 2141 The estimate of annual economic benefits was not generated by the SWRCB but by consultants to the law firm representing the county in the EDF vs EBMUD lawsuit. These economic estimates were not evaluated or adopted by the SWRCB, only mentioned as material received from a litigant. These estimates have not been subject to critical review. If used, the Corps should justify that use.
- 2141 The statements in the Appendix on present use numbers are based on numbers that were developed using very tenuous methods. It should be kept in mind that the referenced use numbers were developed for the parties on one side of a litigation action and would have been in the interest of those parties to estimate high use numbers. These numbers should not be adopted by the Corps carte blanche.
- 2140 A flat percentage of users missed is not appropriate as some uses are notably uncontrolled access oriented such as swimming, fishing, hiking, biking, and horseback uses. These should have an increased percentage of total uses.

- 2143 I estimate that the 650,000 at Folsom alternative would result in the average annual loss of about 2.5 percent boating uses and about 2.5 percent of swimming/wading uses. These losses are equal to annual average loss of .9 percent and .8 percent respectively of the total water dependant uses. This does not appear to be a significant impact to eliminate the 650 TAF alternative from the solution set.
- 2141 On page H-10 of the Appendix, it is estimated that there are 660,000 boating user-days annually, 12 percent of the total; representing economic benefits of between \$7.5 million and \$8.3 million annually. The total user level estimates are the result of a questionable use level inflation process and should be carefully reviewed prior to use in any analysis.
- 2143 Because of the errors in respect to the baseline user levels; minimum flows used; and how minimum flows were applied, erroneous conclusions were made regarding estimated use changes. That, in conjunction with unjustified economic value of the changes estimated to incorrectly estimate the economic value of the changes streamflow patterns. The rest of these findings on the impacts to swimming and wading are incorrect because of the total assessment methods.
- 2142 The Corps also incorrectly combined nonmarket values (not economic benefit values) for the low estimates of use levels. Nonmarket values are not economic benefits. Beyond the misreading of the information, the estimated economic benefits were derived from potentially inflated user number estimates and should be carefully applied and fully qualified.
- 2141 The consultant implies that the satisfaction of demand estimates (32 percent of which are water dependant) in the future depend on "adequate flows". However, no levels were stated to maintain unconfined user levels. The consultant's report also did not determine that the existing flow pattern was at or near that "adequate flow", which implied that flows were limiting uses.
- 2143 I respectfully submit that all references to recreation in your report be reviewed for overestimation of recreational impacts with respect to the issues I've described and appropriately apply a justifiable assessment method in the analysis and comparison of alternatives.
- 2142 Page H-61 states that if Nimbus releases were below threshold flows for successful boating, all days would be lost. The Corps has misunderstood the definition of minimum flows, which still maintain the instream recreational uses without changes to pattern or use level. Below minimums presents a relative shift in use. Zero use is not a reasonable assumption.

- 2101 Although recreation may not be an authorized project purpose, nonetheless it is real, and impacts on these opportunities should not be ignored in the cost calculus.
- 2239 Appendix H, page 56 - The types of assessment steps mentioned are necessary to conduct an adequate analysis but where are they? How can they be judged? Were they developed appropriately, combined appropriately, represent what they are presented to represent, and used appropriately?
- 2237 Appendix H, pages 13-14 - From the material presented on surface elevations, it is not clear whether or not these statements are internally consistent.
- 2239 It is not clear what the base year used to project attendance. Is it the present conditions of 2,100,000 annual users shown in Table H-4? Is the 3.44M in the year 2000 the annual visits or user-days? Are the identified changes in the use (Table H-17) based on 3.44M annual users?
- 2238 It should not be assumed that if the proposed recreational facilities are not built in conjunction with levees is an alternative with great promise for increased lower river wildlife values, yet it is not even explored at all in this document. It would also relieve some of the predicted hydrologic vegetation stress the Corps says necessitates riprapping and riparian vegetation removal.

**RESPONSE:** Please refer to Chapter 14 of the EIS, Chapter VIII of the Feasibility Report, and Appendix H for an augmented discussion of the recreational aspects of the Selected Plan.

- 511 The cost of this expandable dam is outrageous when compared to the benefits to such projects as the American River Parkway.
- 2238 The proposed recreation facilities are designed to meet the projected demand which in part results from the local agencies not meeting their responsibilities of providing recreational facilities. It is unreasonable to use monies from the national tax base to provide recreation that should have been developed through local means.

**RESPONSE:** Selected Plan includes a primarily single-purpose system of improvements for flood control. Therefore, potential impacts resulting from a multipurpose project on recreation are outside the scope of the feasibility study.

355 The American River Parkway should be expanded to provide more recreational opportunities.

**RESPONSE:** Please refer to the Selected Plan description in the Main Report (Chapter VII) and the Recreation Appendix. Day-use recreation facilities are included in Selected Plan within the Natomas area. No other features are planned in the parkway since no levee or channel improvements are scheduled along the American River Parkway. The flood control project will provide only for recreation opportunities created by the flood control project features if there is a nonfederal sponsor. Other types of recreation opportunity are not allowed by the flood control project recreation authority presented to the Corps by Congress.

1996 EIR should discuss adverse impacts of no project on recreation opportunities in Natomas, downtown Sacramento, and lower American due to flooding.

**RESPONSE:** EIS, Recreation Chapter, Impacts, no-action alternative has been expanded to include flooding impacts.

2143 Regardless of the objections to the methods and assumptions used, values in Table H-22 are presumed to be intended in the \$1000's rather than the \$100,000's. If not, this table presents an economic benefit loss estimate of \$22.5 million under 650 TAF for swimming/wading. This is about \$450/user-day even at the exceptionally high use level loss in this Appendix.

**RESPONSE:** Please refer to Table H-22 of the Appendix for the correction made.

2140 The lower American River recreation impact estimate statements made in the report must be supported with adequate information including: (1) the number of users of this area influenced by streamflow changes; (2) the degree to which various user activities may change with specific flow changes; and (3) interpreting the above into an estimate of impact magnitude and significance.

2142 Using the accepted minimum flows for boating (1,500 cfs) and using the correct functional definition of minimum flows (100 percent uses a minimum flows), Table H-19 can be used to assess differences of 3 Folsom operational regimes. This table indicates that the only water-year condition that would impact

users would be the critically dry year. All others would have no discernable difference.

- 2234 Please identify the studies used to estimate the decreased use of Folsom Reservoir based on varying water elevations. Are these studies applicable to this region given the intense and growing recreational demand in the area?
- 2203 The statement that reoperation of Folsom would create recreational impacts at Folsom and the lower American River somewhat overstates the magnitude of those impacts. For the price of the project, a new mooring facility could be established to reduce impacts to sailboat owners. After adjusting Corps evaluation for analytic errors, only 1 percent of total visitation would be lost.
- 2235 Please provide a basis for the statement on page 14-5 that there is a significant impact associated with lowered Folsom Reservoir elevations. What are the sensitive resources that are in need of protection? How is this consistent with the statement on page 14-15 that inundation of the river canyons by the dam would be insignificant? On what basis does the Corps believe that Folsom Reservoir has more sensitive resources than the river canyons?
- 2240 The loss of Brown's Ravine for year-round mooring is a major issue primarily because the sailboat owners do not wish to be required to pull their boats out of the water for the winter. If regular winter drawdown were to occur at Folsom, alternative winter mooring facility configurations at Brown's Ravine could be developed. This impact can be eliminated with some facility modification.
- 2237 It is apparent that various user activity types have been considered in the assessment. Given the conditions outlined, to develop inadequate and accurate representation of stage vs recreational values, it is necessary to develop some weighing scheme whereby the relative importance of the various user activity types can be combined.
- 2239 It is noted that most of the recreational losses are in dry and critically dry water-years and in the winter season of more normal water-years. It is not necessary to develop major water resource project to provide "all-conditions", "all-seasons", and "all-years" water-based recreational resources.
- 2237 Seasonal differences in water surface elevations should be factored into your analysis. Stage/recreation value relationships are neither presented or discussed. Without them, any evaluation of seasonally related impacts cannot be adequately undertaken, and the results cannot be reviewed by the public.



**RESPONSE:** The Selected Plan will not change the operation of Folsom Dam. This report also does not propose any changes regarding recreation in the lower American River. See Chapters IV and V in the Main Report and Chapters 2 and 3 in the EIS. The Selected Plan will change floodflows during floods, lowering peak flow by temporary storage and extending the period during which controlled floodflows move down the river by several days.

2142 On page H-61 of the Appendix, it states that studies conducted of the EDF vs EBMUD lawsuit identified minimum flows for all boating as 2,000 cfs and swimming and wading as 1,500 cfs. It is unclear where the Corps got these values, since the SWRCB findings in this regard were 1,500 cfs for all boating and 1,250 cfs for swimming and wading. The Statement of Decision did establish a minimum 1,750 cfs flow but that was for fisheries, not recreation.

2143 The same flaws regarding minimum flow thresholds and minimum flow definition are apparent in estimates of swimming and wading user level changes and the lower values of those changes. Table H-19 can be used to compare Folsom operation alternatives. Only the critically dry year holds any impacts and they should be considered insignificant for the same reason as boating in the previous comment.

2142 Because the potential streamflow impacts to boating are very different, in fact, than those that result from the Corps' evaluation due to flawed minimum flow definitions, the information in Table H-20 is incorrect. The user shift in the critically dry-year condition would result in an average annual shift of about .25 percent and should be considered an insignificant change since it occurs in the condition that public expectation is decreased.

2141 Swimming and wading uses are also derived from the same questionable source as the boating uses. In addition, the estimated range of economic benefits results from an incorrect reading of Table 5-4 in the 1988 SWRCB report. The Corps had incorrectly combined economic benefit estimates for 237,000 users with estimates for 552,000 users for their reported lower range estimate of \$7.5 million.

2234 Please provide support for the estimate of 750,000 user-days as a result of the proposed developments identified on page 14-11.

**RESPONSE:** The Recreation Appendix and Chapter 14 of the EIS/EIR have been revised in light of these comments.

## **RECREATION - NATOMAS**

2119 Integration of recreation and wildlife habitat at the Uruttia property would need to be carefully planned. Improper design could diminish adjacent wildlife values in that area and conflict with national wild and scenic rivers criteria. Also, consideration should be given to developing the site as partial mitigation for project impacts.

2234 Please identify the impacts intended to be mitigated by the habitat restoration activities proposed for the Uruttia property. Are high intensity recreational facilities and habitat restoration compatible uses for this site?

2233 How does the Uruttia project relate to this project since no project work is being planned along the lower American River levees? Additionally, hasn't the Uruttia project been planned for some time? Isn't the county proposed to purchased the property with State general obligation bond funds, not flood control assessment funds?

**RESPONSE:** The Recreation Chapter of the EIS, Recreation Plan Section, Natomas Recreation Facilities, has been expanded to include these concerns about proper design. However, there is no mitigation obligation applicable for assisting development of the Uruttia property. This portion of the recreation plan has been dropped from the Selected Plan.

1848 The revised DEIS should identify the extent recreational facilities in Natomas affect the design of the proposed flood control project and which will result in fill within the waters of the U. S. If fill within the waters results, an alternatives analysis of these components must be included in the revised DEIS.

**RESPONSE:** Please refer to the expanded discussion in the EIS/EIR, Recreation Chapter, Recreation Plan, Natomas Recreation Facilities, and in more detail in Appendix H, Chapter V, Bicycle and Equestrian Trail Design and Siting Considerations. Generally, the project recreation facilities are superimposed onto proposed flood control facilities and thus cause few if any additional adverse impacts.

2253 Recreational costs and benefits fail to disclose the true import of these measures because the information contained herein is insufficient to draw the alleged conclusions made by ACE.

2253 It is hard to imagine the residents of the City and County of Sacramento will deliberately set out for areas known for vandalism and crime to cycle, ride horses or picnic during peak user-months when the temperature hovers around 100 degrees.

2133 In the discussion of direct impacts in Natomas, the impacts are declared negligible due to the unorganized and undeveloped nature of recreation in the area. This indicates a bias against recreation unsanctioned by the Corps.

2233 The no-action alternative should acknowledge that there are efforts underway to pass a county park bond measure and the future park developments are not solely dependent upon additional development.

**RESPONSE: Comments noted.**

2254 The Natomas trails are not really project features because they could, and at some point in the future may, be built whether or not any of the Corps' flood control alternatives are adapted.

2254 The Feasibility Report fails to adequately address the likelihood of nonfederal sponsor funding the proposed recreation trails.

**RESPONSE: The Recreation Chapter of the EIS under Recreation Plan, Recreation Plan Formulation, adequately discusses both the issue of recreation becoming a project purpose and nonfederal sponsors.**

2137 Inadequate mitigation is offered for potential recreational losses. Bike trails and picnic grounds are substituted for hunting and fishing areas, a trade of unlike features. Natomas recreation features are not offered as mitigation, but as project features - perhaps serving only to enhance the benefit/cost ratio of the TSP.

**RESPONSE: We do not concur that there will be inadequate mitigation for recreation losses, and this is explained as follows. There are four types of recreation impacts and mitigation considerations: (1) Impact from removing extensive river gravels for dam construction: This impact has been avoided by relocating the source for dam construction borrow materials to an existing quarry. (2) Impacts in the dam inundation area from periodic temporary storage during floods--these are primarily impacts to vegetation and fish and wildlife, but this also impacts aesthetics and recreation experience: Mitigation will be provided for**

vegetation/fish and wildlife impacts at locations outside the inundation area; the loss of recreation experience associated with changes to vegetation composition, etc. in the inundation area (see discussions on vegetation/fish and wildlife impacts) is not a significant impact and no mitigation is provided for this. (3) Impacts in the dam inundation area to existing trails and other recreation facilities damaged by erosion or other effects from temporary inundation: Mitigation repairs are included in the operation and maintenance program for the project. (4) "Impacts" from not implementing recreation enhancement improvements in the dam inundation area and from providing recreation enhancement improvements by building trails and supporting facilities associated with levees and flood control improvements in the Natomas and lower American River area: A nonfederal sponsor and cost sharing for recreation enhancement is required by law; no sponsor could be identified for the inundation area; the City and County of Sacramento have agreed to sponsor the recreation enhancement for Natomas and lower American River.

## RECREATION - UPPER AMERICAN

- 1900 If recreation is a criteria, then a free-flowing stream offers a unique recreational opportunity. There are few of those left, compared to dozens and dozens of lakes.
- 1516 The loss of river recreation as a resource to the large number of people would be crushing.
- 1613 The river significantly contributes to local revenues through recreational use. It is also a valuable recreational resource to millions of people.
- 1875 We support recreation to accommodate local needs.
- 878 This river is one place where we can go to relax and remove ourselves from metropolitan influences.
- 1156 I don't want to see a beautiful recreation area destroyed.
- 912 I support the existing forms of recreation on the river.
- 1403 Many people spend recreational time there. It is an important resource.
- 1893 The canyons provide miles of trails for hikers, bikers, and equestrians as well as white-water rafting.
- 1332 There are many people who use the river canyons for recreation.
- 1410 We need a place for recreational activities.
- 1119 I hope when I grow up that I am able to come back and enjoy the American River in the same condition it's in now.
- 1202 I love the American River canyon and I don't want to see it messed up anymore than it already is.
- 905 Please preserve existing recreation areas.
- 903 Please preserve rafting opportunities on the American River.
- 663 I have rafted, kayaked, and camped along the river banks, since I moved here in 1987. Places like the American River are what makes California such a beautiful state.
- 580 I would like to be sure that I can raft down the river in the future.

- 117 I've enjoyed my time on the American River. It was a very good experience and I wish you would keep it that way.
- 752 The primary value of the American River lies in its natural resources and recreational value.
- 784 I enjoy the existing recreational activities.
- 120 I hope the issues of flood safety, water and power are carefully balanced with the enjoyment natural beauty this river provides those of us who raft it.
- 118 I'm enjoying the South Fork of the river and would like to do the same on the other forks.
- 766 The beauty and recreational opportunities along the American River should be maintained and even improved.
- 185 The North and Middle Forks of the American River are important recreational and wildlife areas.
- 524 We enjoyed the rafting experience and hope that it will remain  
523 for those who follow us.
- 337 I live adjacent to the canyon and enjoy biking, swimming, and other recreational activities. It is a special place.
- 113 The North and Middle Forks of the American are great recreational and natural resources.
- 1973 Participants in the Tevis Cup and Western States Run use the canyons more than on just race day.
- 1272 River recreation is a viable economic livelihood for many in the Sacramento area and it provides and escape from urban life.
- 2091 If a dry dam is constructed, there will be more land in public ownership than required for flowage easement. Large amounts of property could be declared surplus and sold, causing a significant decline in natural scenic and recreational resources. A formal commitment must be made for the retention of public lands, managing agency, and future development.
- 2238 The report incorrectly identifies the Tunnel Chute run as not including the portage at Ruck-a-Chucky which is located upstream of the Greenwood Bridge site take-out. It incorrectly identifies Ruck-a-Chucky as on the run between Greenwood Bridge and Highway 49; the major rapid, and sometimes portage, on this run is Murderer's Bar gorge.

1381 People won't be able to enjoy the river as much with a cement dam in the way.

**RESPONSE:** Since the dam's only purpose is flood control, water would only be impounded behind the dam above the river scour zone for short periods of time (5 to 20 days) on an intermittent basis (on an average of only once every 5 to 10 years). These periods during which floodflows would be temporarily detained will occur during the winter rain periods when recreation is not generally taking place in the American River canyon; thus, impacts on recreational use of the River should be small. The environmental studies also confirmed that the vegetation and wildlife in the canyon can return unhampered once the winter flood detention recedes behind the flood control dam and that the visual and scenic value of the area will not be diminished. Please refer to Chapter 7 of the EIS/EIR and Appendix Q for a detailed discussion.

1365 Recreation will be a joke. The usable surface will be minimal. The few existing campgrounds will assuredly be seldom available. The type of people attracted to such recreation will be less than desirable and will tend to trash the area.

1203 The Sacramento area has over a million people and we need that multipurpose dam for recreation.

914 Still water (like a lake) is far less desirable than the free-flowing river that exists now.

1179 There will be lots more recreation enjoyed by many more people with the dam and it will boost Auburn's economy.

1757 Flooding of the canyons will not benefit outdoor enthusiasts. It will only be used by jet skiers and motor boats.

1104 I disagree strongly that this project will increase recreational opportunities for Sacramentans. The canyons currently have a lot of recreation.

1891 There is a lot of rafting in the Middle and North Forks compared to the South Fork. It is infinitesimal compared to the recreation that will develop if a permanent dam is built.

1372 After you build a dam, recreation such as rafting, sightseeing, camping, and backpacking will be replaced by speedboating.

306 More people could enjoy a lake of that size compared to the rivers that are there.

34 The American River's value as a recreational and aesthetic resource must be preserved. Once gone, it's gone - "just" another boating lake, like the many up and down the Sierra.

790 A multipurpose dam would greatly increase recreation use in the canyon.

2088 DPR supports Auburn Dam in concept. Support any alternative that would maintain stable, adequate work levels at Folsom.

**RESPONSE:** The Selected Plan proposes a primarily single-purpose system of improvements for flood control. Therefore, potential impacts resulting from a multipurpose project on recreation are outside the scope of the feasibility study.

1531 This dam would deny the use of the canyon habitat for  
1530 people who want the experience.  
1529  
1527  
1528

1897 You state on page XVII-II that a flood control-only dam would not change the type, location, and quality of recreation in the basin. Yet I have heard stories about water being fouled by rotting corpses, toppled trees, and dead fish.

948 I am concerned the dam will ruin the recreation values in the area.

1040 I am strongly opposed to these plans because of the extreme size and undesirable effects on the environment and recreation.

1097 Sacramento will be losing a unique recreation resource. According to the NRA report, we will lose most of the recreational opportunity.

1413 The dam will ruin the area for human recreation.

1515 I do not want to see the loss of this valuable recreation area.

997 If you put a dam on the river, the water will go down and we will not be able to use it.

1684 The dam threatens the river's recreational and aesthetic values.

1771 Your dam would limit recreational values.



- 1625 Your plan will ruin recreation in the canyon.
- 1800 A valuable recreation asset will be lost if you build this dam.
- 1162 Building the dam would deprive the thousands of rafters the pure joy of life, liberty, and the pursuit of happiness.
- 814 Do not build this dam, which will destroy the great recreational life that we city people need.
- 1386 I don't like the idea of ruining a wonderful recreation center.
- 1245 I don't want a dam because I wish to continue to enjoy the river for recreation and its beauty.
- 1393 I raft the river every summer and I am concerned that if you build the dam, I will have no place to do that anymore.
- 1270 I think that you should leave the river alone so that others can enjoy it.
- 1379 If water backed up behind the dam, it would ruin recreation and the canyons.
- 1100 Sacramento will lose a recreational jewel and a wonderful source of natural beauty.
- 1396 The dam would destroy a recreational resource.
- 823 The dam would destroy happy memories of campers, rafters, and sightseers. Don't ruin their fun.
- 1511 The dam would destroy recreational uses in the canyon.
- 1409 The dam would ruin a lot of recreational things like horseback riding, and water sports.
- 811 This dam will prevent me from enjoying the river for rafting, swimming, fishing, and scenic enjoyment.
- 144 Horse trails and bike trails below the dam would be overrun.
- 587 I am concerned about the loss of recreational use by thousands of people in the American River canyon.
- 682 The area proposed for the dam is a beautiful area and the recreation needs of the state are well served by this area.
- 421 BLM land upstream of the dam will be useless for recreation if the dam is built.

- 244 Damming this river takes away a great experience for  
Sacramentans and other people.
- 240 I don't believe another dam will provide any benefit to  
Californians and would cause irreparable environmental damage  
and loss of precious recreational areas.
- 782 I support the existing forms of recreation on the river and  
don't want to see it destroyed.
- 115 I very much enjoy rafting on the American. Please leave it  
natural for your children and mine.
- 514 Reconsider also the destruction of our recreation revenues.
- 756 The dam will greatly affect the quality of recreation. Tax  
money could be better spent on recreational projects.
- 718 The river environment will be damaged and the recreation  
values will be degraded.
- 444 This dam would also wipe out great river rides.  
445
- 502 I am concerned about the destruction of the American River as  
a recreation area.
- 9 Given that the Corps' purpose in flood control can be served  
in other nondam ways, it's disturbing to think that the Corps  
would move in such a way that would degrade the quality of  
life for hundreds of thousands of people like me who look to  
the American River canyon for recreation and renewal.
- 324 It will destroy a valuable asset in terms of human  
recreational value. Access to recreational areas by the  
American public is one of the public's highest priorities.
- 713 Many rely on the river for recreation. Consider the interests  
of the community before you pursue this project.
- 632 Plan would destroy the natural beauty and recreation of the  
area such as white-water rafting, hiking, and streamfishing.
- 3 The value of the recreational land that would be inundated is  
incalculable.
- 1973 Impacts at Lake Clementine, potential loss during runoff  
period because of the "souse hole" potential loss of power  
boating marina if gas supply facilities cannot be made  
floodproof. Since Lake Clementine represents 25 percent of  
the recreation in the area, there could be a larger reduction  
of a large amount.

- 1973 Seventy-seven percent of recreation could be lost, yet the DEIS finds the recreation impact to be insignificant and no mitigation proposed.
- 1974 To assume that people will use a canyon with a burned out appearance potential shown with a flood slide debris that local agencies cannot afford to remove, except as a curiosity, is to display a vast misunderstanding of the American mind.
- 2090 Operation of flood control facilities will have minimal impact on recreational activities. This is due to low use during flood season.
- 2128 The plan proposes total destruction of the most used and enjoyed sections of the lower Middle Fork River channel and the confluence of the North and Middle Forks.
- 2129 The EIS is totally inadequate in its assessment of the local natural and recreational resources.
- 1974 The recreation affected by loss of access approaches 50 percent.
- 1971 The recreational impact of this document is grossly inadequate.
- 852 The dam would destroy the habitat for animals and for us rafters.
- 2133 Indirect impacts are not adequately discussed for recreation. There is no indication that acknowledged impacts on fish, vegetation, and wildlife might adversely affect recreation benefits in any of the project areas.
- 1972 With a large percentage of upper American River recreation sites lost, temporarily closed, and permanently lost, the conclusion that TSP will produce no negative effects is erroneous.
- 135 I suggest you go rafting on the parts of the American River that would be ruined by a dam. Don't kid yourself about it not being destructive. Everybody knows what a dam will do.
- 590 I would recommend an alternative that preserves white-water/wilderness area/experiences.
- 888 Exploring the river would become generic after a dry dam is built. It would feel like we were going down something man-made. The purpose is to explore and enjoy nature, not something man-made.
- 1366 We will lose recreation opportunities if the dam is built.

827 This dam would destroy the opportunity for others to enjoy the serenity of this beautiful river.

753 The dam would eliminate river expeditions, fishing, or general recreation. These types of recreational rivers are limited in California.

584 I am against the dam because it would eliminate river rafting.

591 Your plan would destroy much of the river's recreational values; please examine options that would preserve the American River in its current state.

1861 Closing the gates on the dam will flood river valleys upstream as far as 20 miles destroying vegetation, wildlife, habitats, and recreation access roads.

1407 We would lose two important races at the bottom of the canyon. Lose the canyons, lose the races.

1903 How do you mitigate the value of lost recreation? How do you place a value on a family day-hike down a forested creek to the river?

2237 Loss of access to the confluence would be a major impact on recreation and must be more fully addressed in the report. Please explain more fully what the impacts will be of inundation all the way up to Clementine once every 2.5 years.

2236 The claim that the TSP would not significantly impact the amount of patterns of use associated with the upper North and Middle Forks is not supported by the analysis in the DEIS. The report should discuss the potential for extended or repeated periods of partial inundation which may adversely affect white-water boating activities.

2098 Clearly the Corps' present project would affect the historical integrity of the route of the Western States Ride and Run.

998 This dam will wreck the rafting.

**RESPONSE:** Please refer to Chapter 14, Recreation, of the EIS/EIR. Short-term and infrequent inundation of the canyon bottom from winter rain storms will have relatively minor impacts to existing recreation resources. A mitigation plan is proposed (see EIS/EIR) to offset any residual long-term impact and potential impacts during the construction period.

1908 Why is it that every time we talk about recreation it is below the dam?

2235 Please explain the following statements regarding recreation in the upper American River canyon: "Several agencies are studying proposals for development of a dam ranging from a large multipurpose facility to a smaller flood control-only dam. Depending on the type of dam and which agency manages the area, recreation development will be designed for different goals." Shouldn't the Corps state its goals for recreational development in the area?

2236 The statement that much of the use of the upper canyon is from the regional community and that recreation would not be displaced to other areas is contradicted by the statements earlier which acknowledges that the upper American River draws people from around the State.

**RESPONSE:** The dam's only purpose is flood control. The periods during which floodflows would be temporarily detained will occur during the winter rain periods when recreation is not generally taking place; thus the impact on recreational use of the River should be small, as discussed in Chapter 14 of the EIS/EIR.

1974 The statement "no loss of public access to recreational resources would be expected to occur" is completely erroneous and is unsupported by information in the DEIS itself.

3 I am also afraid that monies will not be spent with the excuse that the area could be flooded any year.

630 Manage the river's floodplains for recreation and farming, not residential and commercial development.

2024 New Melones foretells what will happen to recreation at Auburn with two-thirds of the canyon lost and many trails including the Western States trail lost.

2238 Absolutely no impact evaluation can be found that addresses the construction and operational impacts of the project. The failure to address these obviously significant impacts is clearly inadequate under NEPA and CEQA.

**RESPONSE:** Supporting information on duration of frequent flooding and impacts to recreation resources are contained in Chapter 14, Recreation, of the EIS/EIR.

2088 The 400-year alternative (TSP), 100-year FEMA levee alternative and 200-year alternative would not adversely impact recreation at Folsom SRA. The 100-year FEMA storage, 100-year FEMA levee/storage and spillway and 150-year

protection would require additional flood storage at Folsom. To the extent these alternative adversely affect recreation at Folsom SRA, DPR opposes them.

**RESPONSE:** Comment noted.

197 Impacts at Ponderosa Bridge replacement, potential for decreasing parking--therefore access, potential that maintenance of access would become a burden to local governments causing loss of access. Recreational loss of 4 percent.

1972 Access may be permanently lost because the cost of maintenance will be the responsibility of the local agencies.

1962 Must not reduce public access to the canyons.

2090 When construction is completed, the staging area at the start of Quarry Road should be expanded and improved and a picnic site be developed farther down the trail/road. To mitigate closure of Quarry Road during construction, a similar trail should be developed, possibly along North Fork to Lake Clementine or along the ridge that separates the two forks.

**RESPONSE:** Access to the American River canyon will remain essentially as is. Replacement parking will be provided as a result of bridge relocations, as discussed in Chapter 14 and Chapter 22 of the EIS/EIR.

2252 Any meaningful quantitative analysis of use impacts requires the creation of a use model for the Auburn SRA which portrays the use to which the area would have been put if modest recreational development had occurred.

2240 In summary there is not enough assessment background in this section to adequately review and critique the methods and conclusions.

2234 The benefit-cost analysis on pages 14-9 to 14-11 is inappropriately limited to an evaluation of recreational opportunities only in the Natomas area and in the lower American River. The analysis should consider the impacts and cost that the TSP would have on white-water rafting and other recreational activities in the upper American River.

2235 Please explain why a benefit-cost ratio was calculated only for the TSP and not for the other alternatives analyzed in the DEIS.

**RESPONSE:** A quantitative analysis believed appropriate for the likely level of impact was accomplished. Reference revised information in Appendix H, Recreation, of the EIS/EIR.

85	101	469	778	8	105	1 1 9
422	186	201	238	239	473	4 7 1
487	484	520	521	703	417	2 1 2
187	84	416	750	685	711	15 9 3
982	1124	1120	917	1427	1431	14 1 7
1675	1698	920	937	925	966	9 3 9
1000	1144	1048	1075	1007	1139	1 2 3 4
1390	1428	1395	1384	1751	812	9 3 8
968	946	950	1127	1123	1004	1 1 2 5
999	1143	1222	1523	955	330	283

Common Comment #7 - Your project would inundate 40 miles of the North and Middle Forks of the American River, ruining valuable free-flowing recreational waters.

2253 The DEIS/EIR indicates that if access is not affected, then use will not be impacted. By keeping the focus on access and user days, the DEIS/EIR concludes there will be only a negligible recreational impact at the confluence during a 400-year flood event despite the fact that it will be submerged under 500 feet of water.

2239 Flooding will clearly adversely affect the recreational use of the Middle and North Forks. The confluence will be most affected because of the frequency and depth of inundation. It is reasonably foreseeable that once Hwy 49 is relocated, Placer and El Dorado Counties will abandon the roadway. The Corps must address these impacts.

2243 Given the length of inundation, and the lack of assurances that the existing Highway 49 would be maintained, what is the basis for the statement that the dam would no change the type, quality, or location of recreation in the upper American River?

2234 Please explain why the loss of vegetation and visual quality will reduce the quality of recreation experiences in the lower American River but would not reduce the quality of the recreation experiences in the upper American River.

2235 The report concludes that the TSP would have no significant impacts to recreation in the upper American River because the primary impact would result from maximum inundation during the winter. The DEIS should discuss the potential impacts to rafting and other recreational activities which would occur

from partial inundation that might extend into early spring and summer.

- 2121 The effects of inundation of recreation, habitat, and transportation are not adequately addressed.
- 2091 Scenic values is one of the main attractions for recreationists. If the project changes esthetic quality, decline in use and quality can be expected. EIS addresses this problem to a minimum degree. A more definite assessment of vegetation losses is needed to predict the impact.
- 2236 Please provide support for the statement that recreational use in the canyons will not be altered by a change in vegetation or visual resource base. Was a survey conducted of the recreational visitors?
- 2236 Is there a commitment from the agencies responsible for project maintenance for clear obstructions resulting from inundation from roads, trails, and other recreation sites?

**RESPONSE:** The issue of inundation is addressed in the EIS in Chapter 14, Recreation, under Impacts, Selected Plan, Direct Operational Impacts, Upper American River, Upper and Middle Forks.

- 2090 Only way of partially mitigating gravel extraction impact is to preserve confluence area and Mammoth Bar gravel bars. Would preserve about 160,000 user-days/year. Also, both areas should be improved to provide parking, sanitation and river access facilities. Additional facilities needed to accommodate recreation displaced from other sites within the project.
- 2090 Aggregate mining along lowest 15 miles of Middle Fork will change character from riffle runs to long, deep pools with short cascading drops in between, would reduce value of recreational rafting and increase DPR's exposure to lawsuits by creating "dangerous unnatural conditions".
- 1997 Creation of deep pools used as aggregate borrow sites may have long-term positive impacts on river environment and fish habitat.
- 1973 Mammoth Bar closure would delete an important point of access to Middle Fork ending boating use which is a safe take-out point.
- 1972 Impact at Mammoth Bar - gravel mining and presence of conveyor belt reducing recreation by 8 percent.



- 1972 What effect will the pits left by gravel extraction have on white-water boating use?
- 1972 Will any existing white-water rapids be destroyed by gravel mining?
- 1972 Loss of access at confluence, .52, and Ponderosa and because of aggregate mining Mammoth Bar.
- 2147 No reasons are given for your failure to mitigate for the destruction of the Mammoth Bar recreation area. I find this hard to justify since finding locations for ORV use which does not damage the environment is difficult. Where are these recreation users going to go? Mitigation should be required for the loss of ORV recreation area.
- 1972 Impacts at confluence - washing of aggregate, closure of 49, potential failure to maintain existing roadway, existence of conveyor belt possible. Aggregate mining would cause a loss in 24 percent of recreational use.
- 2253 Aggregate mining is expected to occur at least 15 miles up the Middle Fork of the American River. A transportation system to move aggregate from the mine site to the damsite has not even been finalized.
- 2089 TSP would have significant impacts on recreation. Aggregate extraction at confluence area and Mammoth Bar will eliminate these bars and displace 160,000 users per year with few options to relocate. Areas to be relocated are farther upstream and do not have carrying capacity to accommodate dislocated users. Greatest impacts of project on recreation will be construction related.
- 2160 Aggregate mining will change the character of the river from riffles to long, deep pools. It may eliminate the "natural conditions" immunity defense against unlawful death, pain, and suffering lawsuits.
- 1937 What effects will the pits left by the gravel extraction have on white-water boating use? Will gravel mining destroy existing white-water rapids?
- 2239 The changes to the riverbed as a result of gravel extraction will totally change the recreational use patterns of this portion of the Middle Fork. While this change will not be permanent, rates of change from the lakelike situation is expected to be very, very slow. Models for sediment deposition such as Lake Clementine cannot serve as an indicator because the pools were created by excavation and the zone of deposition is changing, not stationary like Lake Clementine.

2236 Given the lack of commitment of the project sponsors to maintain public access in the inundation pool and the almost certain closure during the aggregate removal period, what is the basis for the statement that no loss of public access would be expected to occur?

2235 The analysis of the aggregate mining on recreation is inadequate. The highest concentration of recreation use is at the confluence of the North and Middle Forks, yet the impact of mining aggregate at this site is not described. Please describe when the construction will take place and how long the confluence would be inaccessible to the public.

**RESPONSE:** An alternative offstream site for extracting construction materials has been chosen for the Selected Plan. The EIS/EIR has been revised to describe impacts of this quarry site. Recreational use of the river will not be impacted by the extraction of gravel from the proposed quarry. Refer to Chapters 6 and 7 of the EIS/EIR and Appendix M for a complete discussion.

2089 Conveyor belt for aggregate conveyance on Quarry Road will have significant impacts on recreation, specifically on multiuse trails within project area which provide for hiking, equestrian, and off-road bicycle use.

1937 Disclose routes of conveyor system. Need to know routes of system to evaluate impacts of it to recreation. Time length of construction.

1973 Study fails to discuss the effect of lost recreation at all sites between Cherokee Bar and the damsite on the Middle Fork and at Ponderosa Way on the North Fork during construction.

1972 Impacts at .52 access closed - conveyor belt and associated construction activities. Recreation loss of 16 percent.

1971 There is no description of the proposed conveyor system in the project description. This conveyor system is continually referred to throughout the document but has not been adequately described.

1971 Which roadway or trail alignment will this conveyor be placed on?

1971 If there are a number of proposed routes, they should be described in the document.

1971 Without disclosing the location, there is no way for the reader of the document to know what the impact of the conveyor system will be on recreational resources.

1937 Impacts section is grossly inadequate regarding construction impacts and location of conveyor system.

**RESPONSE:** The EIS/EIR has been expanded to better describe potential impacts and mitigation for construction materials conveyor system. Refer to Chapters 6 and 7 of the EIS/EIR and to Appendix M for a complete discussion.

1663 There are few places left that rafters can use; it is a shame to ruin another without exhausting all alternatives.

910 Please assure me that this new dam project will not affect the rafting and picnicking.

988 This dam will wreck the rafting.

837 I am concerned about losing the opportunity to raft the American River in the future.

857 If you build a dam in Auburn, people will not be able to raft down the American River. If you consider other options, they will be able to experience the wilderness more.

815 The dam will ruin access to the North and Middle Forks of the American River for rafting.

1001 This dam will affect the pleasure of people rafting the river now, and in years to come.

1863 I believe rafting and kayaking will continue to increase in popularity, making these irreplaceable runs of greater value to a larger portion of the population.

426 I am opposed to any action which ruins rafting.

578 I am opposed to the dam as it will damage the river-rafting industry.

106 I can't imagine that the recreational benefit of such a dam can compensate for the recreational loss of rafting.

871 This dam would destroy white-water rafting.

507 You should protect recreational activity.

2016 A study to assess recreation benefits of such a dam has never been released.

630 Manage the river's floodplains for recreation and farming, not residential and commercial development.

2121 The effects of inundation on recreation, habitat, and transportation are not adequately addressed.

998 This dam will wreck the rafting.

2259 The DEIS states that the flood control dam would not change the type, location, or quality of recreation in the upper River basin. This statement completely fails to recognize that a 500-foot dam structure would impede white-water rafting, kayaking, and other swift water activities with or without impounded water.

2238 The report does not address the commercial white-water raft operations between the Greenwood/Cherokee Bar area and Highway 49. This is a high-quality canoeing resource as well. Given the adverse impacts this area would experience if a dam were built, the quality and regional significance of this resource should be evaluated.

871 This dam would destroy white-water rafting.

507 You should protect recreational activity.

**RESPONSE:** Refer to Chapter 14 on Recreation in the EIS/EIR. There will be little or no impacts from the Selected Plan on rafting in the American River canyon. The periods during which floodflows would be temporarily detained will occur during the winter rain periods when rafting is not generally taking place in the American River canyon. The river regime during the summer rafting period will remain in its present condition.

591 Your plan would destroy much of the river's recreational values, please examine options that would preserve the American River in its current state.

241 This periodic inundation would destroy or degrade recreational access road and trails, requiring constant and expensive maintenance.

452 Flooding behind the dam would destroy access roads and recreational trails.

710 The dam will flood certain invaluable recreation areas including thousands of miles of trails which took a lot of time and money to develop.

1208 Impacts to the Western States Trail have not been addressed. Twenty-five miles of the trail fall within the project area. Inundation will negatively affect roads and trails through erosion and soil slippage. Relocation of the trail from

"historic" sites associated with the run would be unacceptable.

- 1894 Trails would be destroyed by your project. You fail to adequately address the issue of recreation.
- 1759 Recreational access roads and trails would be degraded requiring constant maintenance.
- 1897 The report only accounts for recreation lost during floods, not the result of the aftermath and what shape the canyons would be in.
- 777 Occasional flooding would degrade recreational roads and trails which would require constant maintenance.
- 2091 Repeated inundation will deteriorate stability of trails and dirt roads, making them unsafe or unusable. To mitigate, funds must be allocated for trail rehabilitation.
- 2097 The draft fails to note the full extent of project impacts on the Western States Trail, and the Ride and Run.
- 2253 The DEIS/EIR fails to discuss adequately the costs associated with the repair and maintenance of trails and roads subsequent to inundation, and mitigation measures to insure present facilities are upgraded to withstand a flood event.
- 1407 We would lose two important races at the bottom of the canyon. Lose the canyons, lose the races.

**RESPONSE:** The EIS/EIR, Chapter 14, Recreation, Selected Plan, Direct Operational Impacts, Upper American River, has been expanded to better describe impacts and mitigation for recreation trails in the detention dam.

- 1879 Recreation in and around the dam is not addressed at all.

**RESPONSE:** The Recreation Chapter of the EIS/EIR has been expanded to better describe recreation resources around the damsite.

- 2091 If flood control only, more land in public ownership than required for flowage easement. Large amounts of property could be declared surplus and sold to private developers. Could cause significant decline in natural scenic and recreational resources. For mitigation formal commitments must be made for retention of currently held public lands, a

managing agency and future development funds. This whole issue must be resolved prior to plan approval.

2091 Study assumes continued management of Auburn SRA. No guarantee this will happen. Auburn SRA operated by DPR on a year-to-year contract basis with USBR. Funding is provided by ongoing construction budget for multipurpose Auburn Dam project. DPR has responsibility for developing facilities associated with multipurpose project. If project deauthorized, funding to DPR for operation of Auburn SRA will cease and responsibility for development of recreational facilities by either DPR or USBR will be relinquished.

2024 New Melones foretells what will happen to recreation at Auburn with two-thirds of the canyon lost and many trails including the Western States trail lost.

2098 To the present benefits must be added those anticipated in the future as both our events, other events, and general public attraction to the canyon increase in stature over the years.

**RESPONSE:** Chapter VIII, Selected Plan, of the Main Report, Chapter 14, Recreation, and Appendix O, Real Estate, of the EIS/EIR discuss the project future conditions in the detention dam area. The Selected Plan assumes that recreation now managed by other agencies will continue and that existing federal lands will remain in public ownership. It is likely that the disposition of federal lands will be addressed in the federal project authorizing bill.

2091 No agency has formal commitment to operate and develop proposed project. DPR has stated willingness to transfer USBR commitment to a new project. Action would require approval of CA Legislature, CA Dept. of Finance and general plan amendment for unit.

2091 When construction completed, staging area at start of Quarry Road should be expanded and improved and picnic site developed farther along trail/road. To mitigate closure of Quarry Road during construction, similar multipurpose trail should be developed - possibly along North Fork to Lake Clementine, or along ridge separating two forks of river.

2067 Allowable uses of recreation land after project not identified. DFG recommends project lands be open to recreation, including hunting and fishing.

**RESPONSE:** Please refer to revisions in the EIS/EIR and in Chapter VII of the Main Report on postproject operation. Detention dam area lands will be operated by the nonfederal sponsor and existing conditions will be maintained. A coordination meeting held with

various agencies did not identify a nonfederal sponsor willing to participate in cost-sharing of enhancement items for recreation resources at the upper American River portion of the Selected Plan. Consequently, recreation in the detention dam area is not a project purpose.

1173 Developed recreation sites, trails, and access roads would be under water 11 to 16 days during a 100- to 400-year flood event.

**RESPONSE:** We concur that this impact will occur. Inundation of recreation facilities is discussed in Chapter 14 of the EIS and in Chapter VII, Selected Plan, of the Main Report. Appropriate mitigation for repair of any recreation facilities which may be damaged is provided in Chapter 22 of the EIS.

1972 What kind of restrictions would be placed on boating along the Middle Fork during construction?

1937 What kind of restrictions on boating on Middle Fork during construction?

**RESPONSE:** Reference expanded discussion in Chapter 14, Recreation, and Chapter 13, Noise, in the EIS/EIR. Generally, use of the River will not be impaired; however, water use recreation activities for about one mile upstream from the damsite will be restricted during part of the 5-year construction period.

1972 How long is construction supposed to last?

**RESPONSE:** Five years. See Chapter IX of the Main Report for a full schedule.

1972 What kind of noise will be generated through mining and construction and what effect will this have on recreational enjoyment of the area?

1937 Noise from mining and construction on recreation?

**RESPONSE:** A full discussion of noise impacts and mitigation is presented in Chapter 13 and Chapter 22 of the EIS/EIR.

2092 EIS should discuss mitigation for recreation impacts at upper American River and Auburn SRA.

2090 Primary operational impacts of flood control will be on facilities at Lake Clementine. Lake accommodates 125,000 users annually. Floodflows will create impoundment pool significantly higher than current lake level of 715 feet. If not mitigated, marina and public restrooms must be modified to withstand immersion.

2098 If periodic but unpredictable inundation is anticipated, and no project funds devoted to its mitigation, the practical consequence will be an abandonment of the canyon as a recreational resource. The EIS/EIR must articulate more directly this impact.

2237 The Corps' mitigation for the recreational impacts of the TSP on the upper American River is, in fact, a statement of some of the significant adverse environmental impacts. It is clear that the Corps is simply treating the upper American River as a reservoir pool, not as a recreation resource of state and national significance.

**RESPONSE:** Please refer to the expanded discussion in Chapter 14 of the EIS/EIR for a discussion of impacts and mitigation for recreation resources in the detention dam area. Also included is a discussion of Lake Clementine and the upper American River.



## **SECTION 404(b)(1)/JURISDICTIONAL WETLANDS**

- 1939 Appendix G, Page G-4, Section 3 (1) (A) (1) - Is it feasible to obtain gravel material from an upland quarry? If not, what are the constraints?
- 1939 Appendix G, Page G-5, Section 3 (1) (B) (1) - Significant physical and biological affects will occur due to the proposed gravel extraction. This section does not adequately address these impacts. Studies are required to analyze downstream fisheries, gravel transport dynamics, and other effects associated with gravel removal.
- 1940 Appendix G, Page G-13, Section 3 (5) (E) (1) - It is untrue to state that the gravel extraction would not impact wetlands since the gravel bars would not be expected to contain hydric soils. According to the Federal Manual for Identifying Jurisdictional Wetlands, a gravel bar inundated for more than a week during a growing season is a wetland. This needs evaluation.
- 1941 Appendix G, Page G-14, Section 3 (5) (F) (1) - It is incorrect to state that there are not vegetated shallows within the gravel extraction or dam areas. There are a number of vegetated areas on Middle Fork within the extraction area. This needs to be reevaluated under the current Federal Wetland Identification Manual.
- 2247 The evaluation states that gravel extraction operations would require direct access to the water in order to fulfill its basic project purpose. This is incorrect for a number of reasons. The basic purpose is flood control for Sacramento and the Corps has not demonstrated this is dependant upon access to special aquatic sites. Although gravel may be needed for construction, the Corps has not demonstrated that the proposed extraction sites are the only feasible locations to obtain this material.

**RESPONSE:** As a result of additional analysis conducted following circulation of the Draft EIS/EIR, it was determined that there are alternative sources of gravel material available which will not result in adverse impacts to the gravel bar areas along the Middle Fork. The gravel material will be obtained from the existing quarry near Cool in El Dorado County. Because of this change in gravel material source, the text in the main report and EIS/EIR, and the 404(b)(1) analysis has been revised to discuss the impacts which are likely to result from dam construction and operation associated with the new aggregate source.

- 1939 Appendix G, Page G-7, Section 3 (2) (A) (1) - The temporary effect of stockpiling gravel, haul road placements, and Highway 49 construction needs to be addressed. This section should also address impacts associated with temporary retention of water upstream of the dam.
- 1940 Appendix G, Page G-8, Section 3 (2) (C) (1) - The temporary effect of the stockpiling of gravel, hauling road placement, Highway 49 construction, and construction pads needs to be addressed.
- 1941 Appendix G, Page G-14, Section 3 (5) (G) (1) - The response should be changed to read that dam construction WILL significantly impact pool and riffle complexes. Impacts associated with haul roads, construction pads, etc. should also be addressed.

**RESPONSE:** See the response above. A discussion of the impacts associated with haul roads, construction pads, gravel transport, and other construction related activities has been added to the appropriate chapters of the EIS/EIR. There will be minimal impacts to riffle and pool complexes as a result of dam construction. The foot print of the proposed dam will primarily be located in an area which currently is isolated from the river as a result of the use of the diversion tunnel. Following construction, the river will be restored to the natural streambed, passing through the open sluices at the base of the dam. Following construction, the flow regime will be the same as is currently experienced except during storm events which exceed the capacity of the sluices.

- 1940 Appendix G, Page G-11, Section 3 (5) (B) (1) - Long term secondary impacts to the upper American River need to be addressed. Especially of concern is the significant impact to the lower food chain due to water impoundment.
- 1941 Appendix G, Page G-14, Section 3 (5) (H) (1) - Impoundment of water, no matter how temporary, needs to be addressed. This would effect both downstream and upstream wetlands habitat.
- 1941 Appendix G, Page G-15, Section 3 (6) (B) (1) - Long term impacts have not been addressed. Effects due to periodic inundation needs to be evaluated.
- 1942 Appendix G, Page G-16, Section 3 (6) (C) (1) - The EIS/EIR doesn't adequately address wildlife/vegetation impacts. Periodic inundation effects on lower animals and insects might impact the food chain. Therefore, it is not possible to evaluate whether this is the least environmentally damaging alternative.

1942 Appendix G, Page G-30, Section 3 (8) (A) (1) - Water level fluctuation due to the impoundment of water behind the dam needs to be addressed.

2246 Would operation of the TSP, including periodic inundation of the canyon, reduce the diversity of plant and animal species within the canyon? Describe changes in species composition and/or aquatic wildlife populations anticipated as a result of periodic inundation of the upper American River.

**RESPONSE:** Impacts associated with impounding water behind the dam are addressed in Chapter VII of the Main Report, Chapter 7 of the EIS/EIR, and in Appendices G, L, M, and Q. The primary impact to wetland areas along the American River in the upper canyon area would be limited to flooding an already wet area for a slightly longer period of time than would normally occur without the project. The compensation proposed for the project includes mitigation for the impacts to vegetation and associated wildlife which could result from periodic inundation of the area behind the dam. As explained in Chapter 7 of the EIS/EIR and in Appendix Q, there would be very little change in species composition for the area behind the dam. Following flood events, there would be a dip in population levels as a result of the drowning of less mobile animals. The loss would be of a fairly short duration as representatives of those species would move into the area from adjoining habitats.

2246 How many acres of wetlands are included within the 700 acres of habitat estimated to be lost due to inundation? Has the Corps mapped the wetlands in the portion of the upper American River which would be inundated? These wetlands should be mapped to allow the wetlands impacts from the project to be quantified.

**RESPONSE:** The only "wetland" area which will be lost is the portion of the riverbed on which the dam will be located. This area was not identified as a wetland area by FWS because it has been converted to an upland area as a result of prior construction activities and the failure of the cofferdam in 1986. The cofferdam failure deposited several hundred thousand cubic yards of gravel in the riverbed diverting the flows through the existing diversion tunnel. The primary impact to wetland areas along the American River in the upper canyon area would be limited to flooding an already wet area for a slightly longer period of time than would normally occur without the project. The compensation proposed for the project includes mitigation for the impacts to vegetation and associated wildlife which could result from periodic inundation of the area behind the dam.

1940 Appendix G, Page G-9, Section 3 (3) (A) (1) - The answer that there is not sufficient data available to predict increases or

decreases in sediment loads is unacceptable. This data needs to be developed to address long-term impacts to wildlife, wetlands, and recreation.

1940 Appendix G, Page G-9, Section 3 (3) (B) (1) - Long term impacts on turbidity need to be addressed.

2245 In the absence of sufficient data to predict increases or decreases in sediment loads, the Corps is required to prepare a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts and an evaluation of such impacts.

**RESPONSE:** The information concerning sediment transport in the upper canyon area is discussed in Chapter II of the Main Report, Chapter 7 of the EIS/EIR, and in Appendices K and M. This information shows that under normal conditions, there will not be heavy sediment loads in river waters. The stability of the canyon slopes is directly dependant on the length of time water is on the slope and how fast the water is drawn down. The compensation proposed for the project includes mitigation for impacts resulting from slides and sloughing.

1941 Appendix G, Page G-15, Section 3 (5) (J) (1) - The answer that work will be confined to the smallest area possible is inadequate. The associated impact of fill placement is significant and needs to be fully addressed to evaluate appropriate mitigation.

**RESPONSE:** All of the impacts which will result from project construction are fully addressed in the appropriate chapters of the EIS/EIR. Impacts to fish, vegetation and wildlife are discussed in Chapter 7 and the recommended mitigation is discussed there and in Chapter 22.

2246 Would the dam prevent movement of fish downstream?

**RESPONSE:** No, the proposed dam would not affect movement of fish after completion of construction. Following construction, the river will be restored to the natural streambed, passing through the open sluices at the base of the dam. Following construction, the flow regime will be the same as is currently experienced except during storm events which exceed the capacity of the sluices.

2248 Page G-20 deals with effects on the (valley) elderberry longhorn beetle. Has the Corps initiated consultation with the FWS concerning this species under the Endangered Species Act? Has FWS issued a Biological Opinion stating that the 150-year alternative would jeopardize or adversely affect this species.

**RESPONSE:** The project has been fully coordinated pursuant to Section 7 of the Endangered Species Act. The impacts expected to result from this project and the mitigation requirements received from FWS for endangered species are discussed in Chapter 8 and 22 of the EIS/EIR.

2245 The scope of the required analysis under Section 404 is considerably broader than described in page one of Appendix G. Section 404 applies to the discharge of dredged or fill in all navigable waters (Waters of the United States) regardless of the location of the such waters relative to the ordinary high water mark.

**RESPONSE:** The 404(b)(1) analysis has been revised to more closely conform to the guidelines promulgated by EPA.

2246 This inquiry is too narrow and legally inadequate. The relevant issue is whether both construction and operation of the TSP, including periodic inundation, would result in adverse impacts to fish and wildlife, including endangered species.

2246 Did the Corps conduct field studies to identify the acreage of different habitat areas to be affected by periodic inundation? In accordance with HEP, rather than using a composite average, habitat suitability indices should be developed for each cover type and should be weighted by the acreage of each habitat type impacted by periodic inundation. Describe indicator species used.

**RESPONSE:** The construction and operation impacts (including periodic inundation) were fully coordinated with FWS. A HEP analysis was jointly conducted by the Corps, FWS, and DFG to determine project impacts to the various habitat types. There is a discussion of this process contained in Chapter 7 of the EIS/EIR, and the full discussion of the HEP process is contained in the FWS Coordination Act Report.

2247 The Corps' conclusion that the TSP would produce less damage to the aquatic resources, less impact to other resources, and is the least damaging alternative must be reconsidered once the Section 404 evaluation is revised to reflect these comments.

**RESPONSE:** The 404(b)(1) analysis has been modified to reflect the selection of the 200-year alternative as the selected plan, and the EIS/EIR has been revised to fully discuss the impacts which would result from its construction.

2248 The Cumulative Effects Determination section should discuss the potential impacts to the aquatic ecosystem if use of the proposed flood control project is expanded to include a permanent reservoir for water storage.

**RESPONSE:** There is a discussion of the general impacts associated with a multipurpose dam contained in Chapter 17 of the EIS/EIR. It is not appropriate to include such a discussion in this appendix.

2247 Discuss whether construction activities may result in violation of the numerical water quality objectives recently adopted by the State Water Resources Board for a wide range of pollutants in the Inland Surface Waters Plan.

**RESPONSE:** Construction related impacts to water quality have been addressed in Chapter 6 of the EIS/EIR.

2247 Many factors cited by the Corps in support of the conclusion that the downstream environment is more sensitive than upstream are not relevant to the controlling issue under Section 404, which is whether an alternative would have less adverse impacts on the aquatic ecosystem.

**RESPONSE:** The analysis has been revised to clearly explain the selected plans affect on the aquatic environment and the discussion concerning environmental sensitivity has been moved to the EIS/EIR.

2247 The Corps' reasoning regarding incremental reductions in direct impacts of a 200-year dam vs increased damage from reduced flood protection from a 200-year dam does not provide a valid basis for comparing environmental impacts of the alternatives.

**RESPONSE:** This discussion is intended to show that there are consequences and impacts to the environment which will occur as a result of lower levels of flood protection being implemented.

2248 The evaluation concludes that exclusive reliance on downstream measures would not be practicable because they would not achieve the minimum level of protection deemed appropriate by the local sponsors. The Corps cannot allow the local sponsors to preclude the existence of practicable alternatives by defining the project purpose in terms of a specific level of protection.

**RESPONSE:** The evaluation has been revised to clearly state the process used in determining what the practicable alternatives. This process is also clearly set forth in Chapter IV of the Main Report and in Appendix B - Plan Formulation.

2249 Please discuss the studies or factual assumptions which support the conclusion that the 100-year storage alternative would result in significant reductions in the riparian and wetlands habitat.

**RESPONSE:** The information which leads to the conclusions concerning the acceptability of the various alternatives is contained in the EIS/EIR chapters discussing the various resource categories.

2249 The evaluation says that the 150-year alternative's overall impact would be significant. Does the Corps consider the overall impacts of the TSP on the upper canyon to be significant.

**RESPONSE:** The overall impacts of the selected plan are not considered to be significant because mitigation will be provided to offset most of them. The unmitigatable impacts of the 150-year plan are much more significant than those of the selected plan. Both plans will have impacts on visual resources, however, the affect of levee raising and riprapping along the lower American River would impact a much greater number of people using the area for various recreational purposes.

2248 Since no wetland mapping was done, the comparison of wetlands impacts on page G-21 likely underestimates the likely adverse effects of the TSP. In addition, the estimated loss of 665 acres of wetlands due to levee improvements appears to overstated if wetlands become re-established along the lower levee slopes. The increased flood damage cost under the 100-year alternative cannot be equated with increased environmental impacts under this alternative.

**RESPONSE:** The comparison of impacts on page G-21 was not intended to only be a comparison of impacts to wetland areas, rather it was intended to be a comparison of the relative impacts to all habitat types. The 665 acres of impacts resulting from levee improvements along the lower American River would be a combination of impacts to aquatic areas at the rivers edge as a result of riprap placement, and impacts to riparian habitat adjacent to the levees which would be raised or armored by placing fill material and riprap. This construction would eliminate the vegetation on the berm adjacent to the levees much as has been done along the Sacramento River. In those areas, there would be little opportunity for native riparian vegetation or wetlands to become established.

2248 Please explain the discrepancy regarding wetland acreages regulated under Section 404. In various places it states that

the acreage has not been determined (pg G-33), loss of 665 acres (pg G-34, or loss of 211 (also pg G-33).

**RESPONSE:** The 404(b)(1) analysis has been modified to only reflect the impacts to the aquatic environment which will result from construction of the 200-Year flood control dam. This should eliminate the confusion. See also the response just above.

2011 Two important sources of information on wetlands identification were not mentioned as being used in the study. The FWS National Wetlands Inventory maps and wetland delineation maps for previously conducted studies in this area on file at the Corps are not mentioned, leaving doubt as to whether the analysis was adequately thorough.

**RESPONSE:** The wetlands delineation for the Natomas area was conducted by the Regulatory Branch of the Corps, and it is assumed that they used information available from previous investigations, and they routinely use the NWI information to make preliminary determinations about the possibility of areas containing wetlands.

1841 Wetland acreages in agricultural production should be included within the jurisdictional determination if it could be affected by the proposed project.

**RESPONSE:** Areas currently in agricultural production are not considered to be jurisdictional wetlands. The environmental values for these areas are considered in the evaluations conducted to assess project impacts. A discussion of these areas is included in Chapter 7 Fish, Vegetation and Wildlife.

1841 The Corps should provide a table of acreage of Waters of the United States by type and the direct and indirect impacts for the existing conditions, no action, and alternatives.

**RESPONSE:** Your comment is noted. It is unclear how this would enhance understanding of project impacts beyond the information currently contained in the documents.

1851 Page 2-8. The revised DEIS should indicate whether the rerouting of the existing bike trail at Del Paso Boulevard will result in additional impacts to waters of the U.S. or wetlands.

**RESPONSE:** It is not appropriate to add additional information to this chapter of the EIS/EIR. Detailed information concerning impacts resulting from the rerouting of the bike trail a included



in Chapters 7 and 14 (Fish, Vegetation, and Wildlife and Recreation).

2114 Page 8-13, paragraph 3. The Corps needs to arrange for entry as necessary onto private properties to determine the correct acreage of jurisdictional wetlands in Natomas to complete their evaluation. This information would be helpful to FWS's final CAR.

2114 Page 8-15, paragraph 2. Further discussion is needed here. The jurisdictional wetlands survey needs to be completed.

1841 Identification of jurisdictional wetlands for the upper American focused on the inundation zone created by the 200-year alternative. Wetlands above the high water mark were not identified. A jurisdictional determination of tributaries has not been completed. The revised DEIS should contain final jurisdictional determinations for all wetlands and Waters of the U.S. for all alternatives.

2114 Page 8-17, paragraph 2. Further discussion is needed here. There are likely many additional sites above the high water lines along both canyons that meet jurisdictional wetlands criteria. The Corps needs to complete their jurisdictional determination above the high water lines and include the information in the FEIS.

**RESPONSE:** There is no need to accomplish further studies to identify jurisdictional wetlands at this point since all wetland areas which will be affected by the project have been identified and evaluated. Areas above the inundation zone in the American River canyons will not be affected by the project and there is no reason to conduct additional surveys for those areas. Any areas which may be developed at some point in the future by private entities will be subject to scrutiny by the Environmental Protection Agency and the Corps' permit process.

2114 Page 8-15, paragraph 5. Proposed changes in hydrology with the alternatives could affect jurisdictional wetlands.

**RESPONSE:** It is true that selection of any of the alternatives which would revise flows in the lower American River could affect jurisdictional wetlands.

## SEISMICITY

1800	1202	32	65	6673	912	907
990	73	318	280	359	304	573
621	758	1202	1432	1582	1435	113
299	250	197	206	388	242	458
496	1370	787	656	1025	1613	2033
1780	397	111	132	710	698	637
383	907	1404	1185	1779	1669	64
66	782	681	1946	2073		

Common Comment #4 - The area is seismically active and is a dangerous place for a dam.

- 5 The dam is geologically unsound because the damsite rests on potentially unstable ground which in the majority of worst-case scenarios would result in catastrophic flooding in the event of an earthquake.
- 1917 The seismic question is neglected in your report. Over 2 dozen faults run under the damsite, which has the potential for an inactive faults to become active.
- 1108 Would I or my family be injured or die from an earthquake produced by the dam resting on one or more of the 20 faults? We live within seven miles of the site.
- 31 The fact that this area is seismically active indicates that this is an ill conceived project.
- 1882 The original Auburn Dam was built on an earthquake fault and stopped for that reason. The proposed dam is located only a couple hundred feet downstream from the fault.
- 191 This high risk activity is far too risky and if any damage occurs due to the faulty structure, the environment would suffer.
- 112 The dam would be built on an earthquake fault and that's the reason development of the dam was once discontinued.
- 106 The flood dangers in case of an earthquake offset whatever flood control benefit the dam might provide.
- 2080 As the area has been historically seismically inactive, would an earthquake with an epicenter close to the dam be written off as an "Act of God"? Would Auburn citizens be compensated for earthquake damage?

1982 Document doesn't analyze the fact that failure of a dam due to earthquakes is higher under floods less than 400-year magnitude, since these would be more frequent.

2016 Earthquake danger by flooding of surrounding areas has never been satisfactorily solved.

2002 The Auburn Dam is very close if not on an existing epicenter recorded in more recent years.

**RESPONSE:** General seismic conditions in the detention dam area are evaluated in the Chapter VIII of the Main Report and Appendices J and M. The detention dam is located in the area of the Foothill Fault System, which has not moved for about 5 to 10 million years. However, on the basis of studies conducted following the 1975 Oroville earthquake, the area was classified as active. The seismic parameters for design of the dam follow the recommendations of the State of California with the concurrence of the Department of the Interior. The feasibility-level design of the 200-year detention dam has been structurally analyzed with the maximum credible earthquake loading. The dam is designed to withstand the most severe ground motions caused by the maximum credible earthquake under both empty and full reservoir conditions. The risk of dam failure is minimal. The Design and Cost Estimates Appendix, Chapter 3, Structural Analysis Section, describes the structural studies. The DEIS Chapter, Consequences of a Dam Failure, describes the results of a dam failure, though such an occurrence is considered highly improbable.

1981 What parameters have been incorporated into the dam design to make it seismically safe?

2079 Has the Corps conducted seismic studies independent of prior USBR analysis? If so, what have the studies indicated? Could USGS do another report prior to construction? If not, why not?

2001 You must quantify and evaluate seismic impacts in order to satisfy the requirements of CEQA. Isn't your determination that the site is seismically safe inconsistent with Woodward and Clyde's findings?

2164 There should be some discussion on why the USGS report describing increased earthquake magnitude and displacement was not used for this final design.

2177 What happened to the problems with the original Auburn Dam? Did they fix the fault or did they finally find a way to sell us the dam that no one wanted fifteen years ago?

RESPONSE: The potential for seismic activity and the seismic event to use for design in this area were subjects of a tremendous amount of study by various groups during 1975-1980. These studies are synopsized in Appendix M. These studies were done in such great depth and by such an acknowledged group of experts, that no additional seismic studies are warranted at this phase of the project. The area was classified to be seismically active and a proper seismic design event was specified. Woodward-Clyde's findings confirmed that the area should be classified as active and did not comment on the safety of the dam. The Woodward-Clyde study was duly considered by the State of California and the Department of the Interior in establishing recommended seismic design parameters; the Woodward-Clyde findings are generally consistent with those recommended parameters. The dam is designed to safely withstand levels of earthquake shaking in accordance with the recommended seismic design parameters. During advanced engineering and design, but prior to construction, the prior seismic findings will be again analyzed to determine if any new information or methods of analysis would suggest a change in the seismic design event. If a change is warranted, the design of the dam will be reanalyzed and, if necessary, appropriately modified. The effects of possible fault movement in the foundation will be duly considered in the design of the dam to ensure its safety. The maximum displacement the dam could experience without a catastrophic failure is not known, but is of less importance in the design than other factors. The important thing is that it will be able to safely accommodate the recommended 9-inch displacement. The appendix on Design and Cost Estimates contains details of the seismic considerations.

2079 If the dam fails, would the Corps and USBR pay for loss of life and damages? Under what conditions would these agencies not pay? What would be the source of funds?

RESPONSE: The dam structure has been designed to withstand potential seismic movements, following the recommendation of the State of California with the concurrence by the Department of Interior. The risk of dam failure is minimal. The dam is designed to withstand the maximum credible earthquake. The DEIS Chapter, "Consequences of a Dam Failure", describes the expected results from a dam failure. Under federal law, the federal government is generally immune from liability for damages caused by a federal flood control project.

1882 If the Bureau is so sure the risk of damage by earthquake is so slim, why are they doing work on the Mormon Island Dike to strengthen it from a potential earthquake from the same fault?

2080 Mormon Island Tract Dam (MITD) could be affected by RIS from Auburn Dam. Why did USBR allow building of MITD to dangerous specifications? Shouldn't it be moved or rebuilt? Who is paying for the present retrofitting? When will MITD be able to survive a 7.0 quake? Why was action not taken until 1990? Is the interest in MTID due to possibility of RIS from Auburn Dam?

**RESPONSE:** Meeting current earthquake standards is a concern for both the detention dam and Folsom Dam. Geotechnical investigations of Mormon Island Dike performed in 1987 revealed that the foundation could be susceptible to liquefaction during the maximum credible earthquake. This is because the dike was constructed before the phenomenon of liquefaction was well understood. In 1990, the lakeside foundation of the dam was temporarily exposed and then compacted to prevent liquefaction during seismic events. This work was done by the Bureau of Reclamation. A reservoir-induced earthquake is considered a remote possibility at either dam. However, reservoir-induced earthquakes are generally considered to be smaller than the maximum credible earthquake.

1853 DEIS, page 24-1 - The revised DEIS should discuss the relative safety of the TSP compared to other alternatives. Discuss whether a larger dam on a complex foundation has greater likelihood of incorporating important weaknesses, whether the site foundation conditions affect dam safety.

1900 What are the chances of dam failure and what are the consequences of that failure?

2079 Assessment of seismic risk should include analysis of a multipurpose dam at the same size of the proposed project including the effect of combined Auburn and Folsom dam failures on downstream urban areas. I would like information on the size and timing of downstream waves at Rancho Cordova, Sacramento, and Greenhaven with estimated death tolls. Are there evacuation plans?

1942 This document does not analyze the fact that failure of a dam due to earthquake is higher under floods less than 400-year level, since these would be much more frequent. What precautions should be in place to provide adequate warning? The DEIS contains no mitigation for public safety impacts, which could be created by the project.

**RESPONSE:** The EIS Chapter, "Consequences of a Dam Failure", explains the likely impacts resulting from failure of the detention dam. It is important to emphasize that the odds of such an occurrence are extremely remote. The likelihood of catastrophic loss resulting from dam failure at Folsom due to a large flood

event is also extremely remote. If such a failure were to occur, large areas of the community would be inundated. Further, warning time could be short and loss of life would be great. The local city and county governments have emergency evacuation plans in effect.

2076 Was the Corps or USBR aware of the earthquake fault at the dam site in 1966? When did the Corps or USBR become aware of the fault? When was this made public? If there was a coverup, are regulations in place to prevent further coverups?

RESPONSE: Chapter VIII, Special Topics, explains the collection of information relating to seismicity resulting from the 1975 Oroville earthquake. This information was available to the public.

The Freedom of Information Act should prevent the possibility of any coverups.

1101 A quarter of a million people downstream and their property are at risk in the event of reservoir-induced seismicity, a phenomenon we apparently don't completely understand yet.

1905 The dam could fail with water pressure causing an earthquake.

1900 What are the chances of a reservoir-induced earthquake.

1365 Filling of the canyon might cause an earthquake.

1100 Once the dam becomes a reservoir, it will cause an earthquake and kill hundreds of thousands of people with a 6-foot-high wall of water.

715 Building a dam may cause further earthquakes.

702 The dam itself could promote earthquakes.

1368 The site has been studied extensively and found to be suitable for earthquake safety.

1211 If you build a dam on an earthquake fault, you should be held responsible for damages and deaths resulting from any and all earthquake phenomenon.

1925 Principal factors in calculating reservoir induced seismicity are the speed of filling and weight of water after filling. Was the effect of rapid water elevation changes within the reservoir assessed to determine reservoir induced seismicity potential?

1185 A dam-induced earthquake of 7.0 could occur and the devastation downstream with water behind the dam would be worse than a 200-year flood.

2079 Increased volume and size of the reservoir could cause reservoir-induced seismicity (RIS). This could destroy the dam and Sacramento.

1981 What is the likelihood that a seismic event could be triggered by the dam and water impoundment under a worst-case scenario?

1942 What is the likelihood of a seismic event being triggered by the dam? What parameters have been incorporated into the dam design to make it seismically safe?

1981 What parameters have been incorporated into the dam design to make it seismically safe?

2079 If the dam fails, would the Corps and USBR pay for loss of life and damages? Under what conditions would these agencies not pay? What would be the source of funds?

RESPONSE: Although there are no confirmed cases of reservoir--induced earthquakes, it is generally accepted, on the basis of field studies, that reservoir-induced seismicity is a genuine phenomenon. There is evidence that large reservoirs sometimes alter the natural earthquake occurrence rate nearby. It is also generally accepted that reservoir-induced earthquakes can be no larger than the maximum credible earthquake which could be generated on a fault otherwise. The dam is designed to withstand the most severe ground motions caused by the maximum credible earthquake following the recommendations of the State of California with concurrence by the Department of the Interior. The risk of dam failure is minimal. The DEIS Chapter, "Consequences of a Dam Failure", describes the expected results of a dam failure. The appendix on Design and Cost Estimates contains details of the seismic considerations.

2053 The Auburn Dam is known to be located within an active fault zone. Dr. Anthony Finnerty (UCD) provided an extensive report reviewing the geologic information available and provided numerous questions about the design assumptions used. I have not seen you give adequate attention to this and I have not heard any answers to the questions his report raised.

RESPONSE: A copy of Dr. Finnerty's paper was reviewed along with the extensive analysis prepared by several different eminent boards of geologists and seismologists. After due consideration to Dr. Finnerty's report, it was determined that the design event adopted for this area was conservative and appropriate for design

of a structure at this site. The dam is designed to withstand the most severe ground motions caused by the maximum credible earthquake under both empty and full reservoir conditions.

2079 Pertinent information has been omitted on pages B-46 through B-48 of Appendix. When Andrus stipulates that a safe dam can be built at Auburn, what size and type is being referred to? If the Corps is certain of the dam, why are changes in alignment probable? How much could further changes in alignment cost?

2076 Does the USBR and Corps continue to think the original (circa 1966) plans for the Auburn Dam would have been the correct structure based on mid-1960s technology?

RESPONSE: Appendix B, page B-48, refers to the Andrus report as stating (for the Bureau of Reclamation multipurpose dam) that a concrete gravity dam should be constructed. The seismic analysis has been limited to the Selected Plan, which is the 200-year dam. The proposed detention dam has been realigned (with respect to the Bureau's multipurpose dam) to minimize foundation problems associated with the F-1 fault. Further realignment is not proposed. Plates 6 and 7 of Appendix N, Chapter 3, indicate this alignment of the proposed detention dam with respect to the F-1 fault.

2078 Foundation soils include talc, serpentine, talc schist, and chlorite schist. These soil types are fractured and do not have integrity. Just how stable is this material? Is there a possibility of seepage and dam collapse? Does the material have integrity to keep a dam from moving? Could materials encourage seepage and trigger seismic activity?

RESPONSE: Extensive foundation work will be done before placement of any dam concrete. This work includes excavation of weathered and fractured materials to solid bedrock and replacement of highly fractured and weak areas with dental concrete. This treatment will result in a highly stable foundation for the dam. Please refer to the response to previous Comment #1101 for a discussion of reservoir-induced seismicity.

2078 What is the maximum movement a non-expandable, multipurpose roller compacted concrete dam could sustain before collapse? USBR has seemingly disregarded previous USGS' 143 page report regarding seismic risk.



RESPONSE: A complete collapse of the structure is not expected under any seismic circumstances. The maximum movement which may be expected before significant leakage occurs has not been determined at this level of investigation. Seismic design parameters can be found in Appendix N. These design parameters were based upon previous evaluations by a team of eminent seismic experts who did evaluate information developed by the USGS.

2165 Why was the seismic analysis limited to 200 year protection and not 400 year?

RESPONSE: Since a range of dam sizes were considered under the various alternatives two structural seismic analyses were performed. First an analysis was performed on a 200-year structure. A second analysis was performed on a hypothetical maximum size structure. In this manner it was assured that any size structure that may be formulated within this range would meet structural seismic design criteria. Appendix N describes details of these analyses. Future design studies on the selected plan will include detailed seismic design considerations.

## SLOUGHING AND SEDIMENTATION

- 148 Periodic flooding of the canyon would degrade flora and fauna, cause landslides, and destroy roads and trails causing a substantial maintenance problem.
- 407 Water-level fluctuations would seriously damage canyon walls causing landslides and vegetation-wildlife habitat. Trees would vanish up to the high-water mark. Access roads and trails would need constant maintenance
- 1104 Just from periodic inundations of current flows, large sections of the canyon walls have slid down and nothing will grow there.
- 1209 The TSP creates many impacts which cannot be mitigated, such as slope damage. They are already damaged from the 1986 cofferdam collapse. This suggests the only possible mitigation is the construction of a multipurpose dam to cover the damaged slopes with water.
- 2081 Flooding will cause a loss of vegetation and numerous landslides due to erosion. Will eroded areas be reforested? Who will be responsible? Is this included in the funding and maintenance of the dam?
- 2119 Page DEIS 21-4, paragraph 3 - The FWS disagrees with this assessment. Based on FWS's studies, there will be significant erosion, soil loss, and slope failure caused by inundation events.
- 2223 The McClellan report assumes 7-10 day inundation to increase the soil saturation levels to the point where slope failures are initiated. There is no analysis or references to substantiate this assertion.
- 2266 To state that it is impossible to determine the frequency and extent of slope failure is unacceptable because it errs on the side of the unknown. To follow that by saying that most of the slides would occur anyway, regardless of the dam, is disingenuous. That type of logic has no business in an environmental document.
- 2223 Based on the time elements (see letter page 59, last paragraph) impacts related to soil saturation should be based on one-day inundation events, if not 1/4 to 1/2 day events. This is considerably less than the assumed 7-10 day duration event used for the assessment of impacts.
- 2222 The major concern with slope failures and the disruption of vegetation communities of the impoundment pool are the

relatively minor in size but very common and high-density slides within the soil mantle, not the large scale but infrequent bedrock slides. Statements in Appendix M regarding slides resulting from excess drawdown rates in 1986 are not supported by any assessment but appear as assertions of opinions.

2266 To say that inundation will tend to make the slopes more stable than they would be otherwise is a specious argument. That type of unsubstantiated and environmentally insensitive comment should not be part of the EIS.

2222 It is apparent that the small scale slope failures will be a pervasive characteristic of each inundation/evacuation event regardless of the duration of inundation. While a number of failures will be less than 1986, they will be great enough to impart significant impact to the vegetation over a long-term impact perspective.

2223 The rates of saturation and evacuation are expected to be great enough to consider wide scale sliding, slope failures, and sloughing to be high probability below the elevation of each inundation event regardless of duration.

**RESPONSE:** Certain areas along the sides of the upper American River canyon are subject to slides, and potential for slides will increase when they become saturated and stored waters are subsequently drawn down. There is historical evidence of slides and some are active today. Reservoir rim stability is discussed in the Geotechnical Appendix M, Reservoir Rim and Slope Stability Chapter. In response to the many comments on the DEIS concerning soil stability, a more detailed analysis of the distribution and characteristics of soil types and mechanisms of slope failure has been prepared. This report, entitled "Evaluation of Soil and Soil Stability for the Proposed Flood Control Dam at Auburn", can be found in Appendix M.

Landslides do not necessarily mean the complete loss of soil vegetation. There are exposed areas at the top of some slides which will require some time to revegetate and some vegetation will be destroyed at the bottom of the slide. Velocities in the draining flood pool will not be of a magnitude to wash away significant amounts of slide material. The American River canyon was subject to flood inundation and drainage for ten years behind the cofferdam before it failed. Extensive vegetation continues to exist in this area of the canyon.

Some trails will be impacted when floods occur and may require some additional maintenance. It depends on the elevation of the trail in the canyon. Very infrequently, a trail may have to be slightly rerouted due to a large slide.

It is very difficult to determine the expected frequency or extent of future slope movement and failures, which movements would have been entirely caused by the Selected Plan or would have occurred under natural conditions. The area of active slides or possible slides constitutes a small portion of the total area of the canyon within the flood pool limits. The report has been revised to more fully describe potential vegetation losses attributable to slide activity based upon a worst-case scenario. Mitigation for these possible losses is included. These impacts and mitigation are described in the Fish, Vegetation and Wildlife Chapter of the EIS.

2198 Page 2-4 of the EIS indicates that little or no sedimentary debris would reach the dam from upstream. Is this true even during construction phase of the dam when mining of aggregate would be occurring upstream at borrow areas in the Middle Fork?

RESPONSE: Impacts due to the aggregate procurement process are described in the Aggregate Source Section of Appendix M. The preferred source of the aggregate has been changed from the gravel bars to the existing Old Cool Quarry, which will greatly reduce the number of settling ponds used during construction and concentrate them in the vicinity of the dam. At the conclusion of construction, these ponds will be shaped and vegetated to resist erosion. Settling ponds will have their sediments removed and spoiled in designated areas prior to being shaped and vegetated to prevent erosion. The analysis of sediment created during construction has been revised to reflect the actual size of the construction area. Much of the sediment created will remain on-site through the use of sediment detention basins in the areas of construction. The EIS has been revised to more fully describe any significant increases in sediment loads to Folsom Reservoir due to construction of the flood control project.

2082 If Auburn were M-P of project size and if filled by sediment to point no longer useful, what is estimated cost to remove dam, sediment and restore valley?

RESPONSE: The very low rate of expected sedimentation is discussed in Appendix K, Hydrology, and in Chapter VII. The analysis conducted indicates that little sediment deposition is expected in the flood pool. Should these deposits begin to impact flood control aspects of the dam, they would be removed. Since the pool is not expected to fill with sediment or be allowed to fill, no cost estimate for removing the dam or restoring the valley is necessary. The cost associated with the small amount of periodic sediment removal is included in the annual operation and maintenance cost.

1943 What is the likelihood of a slide of the magnitude mentioned on page M-5-25 occurring at River Mile 20.1? What effect would this have on inundation of the canyon? What size pool would be created? How long would the pool remain? What kind of impacts would there be on the environment?

**RESPONSE:** Reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. There is no slide of the magnitude described at River Mile 22.4 in the vicinity of River Mile 20.1. There is a smaller slide at 20.1 which will be removed during construction of the flood control dam. It is not possible to predict with certainty if and when the slide at 22.4 would fail or to what extent it would fail. The rim stability analysis identifies this as an area of historic instability. The worst scenario would be that the entire slide would move and block the river. This could create a pool of approximately 200-foot depth. If the slide were not breached and carried away by floodflows, it would constitute an emergency condition and would have to be breached by other means. Flows from the breached slide would be controlled by the downstream flood control structure. This pool could exist for one to two weeks. Impacts to the environment would be similar to those described under flood control pool inundation impacts in the EIS/EIR.

1981 The EIS/EIR states 3 known landslides have the potential to cause a hazard to dams at RM 20.1. What kind of hazard? Will they result in any significant environmental or safety impacts. How will the impacts be mitigated? How will the spoils be disposed of?

**RESPONSE:** Reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. Only one slide has been identified in the area of the dam at River Mile 20.1. This slide will be removed during construction and will not cause a hazard. Excavated material will be placed in the existing excavated area of the past foundation work and in the Salt Creek ravine upstream of the dam. This ravine has already had material placed in it from the earlier Bureau of Reclamation work.

1925 Sedimentation issue should be more directly addressed now as periodic inundation of 6,000 acres. What is the expected frequency of 25% or 50% filling? How many acres would be affected then? Will the Corps be required to remove vegetation in the zone of inundation? What is substrate material in the zone? Will wave action reduce substrate to more friable material?

**RESPONSE:** Reservoir rim stability is discussed in the Geotechnical Appendix, Reservoir Rim and Slope Stability Chapter. The flood control pool should fill to 25 percent of its storage capacity on the average of once every 30 years and would cover approximately 2,200 acres. The flood control pool should fill to 50 percent of its storage capacity on the average of once every 60 years and would cover approximately 3,500 acres. No vegetation clearing will be done in the flood control pool other than those areas impacted by construction of the dam structure. Due to the short fetch lengths and deep valley, and short duration at any given reservoir elevation, wave action should not be a problem in the flood control pool.

1845 The Corps claims that lowering the Folsom spillway and increasing storm-related releases will result in more severe sedimentation impacts in the lower American than under the preferred alternative.

**RESPONSE:** Erosion potential is described in Appendix M, Geotechnical Investigations, Erosion Protection Requirements; American River Chapter. Increased releases from Folsom Reservoir increase erosion along the riverbanks. This eroded material would be deposited as sediment downstream.

1392 A dry dam would simply turn into a muddy muck hole.

1019 Dams and other such projects silt up after a while, making them wasteful in the long run.

1906 A dam like this could easily silt up.

Page DEIS 2-4, paragraph 2, Flood Control Dam on the American River - Existing riverbed conditions above the Auburn cofferdam site demonstrate that substantial accumulation of sediment is likely. It is not appropriate to dismiss the problem without additional study. Further information on probability of sediment accumulation is needed since it affects quality of instream habitat.

**RESPONSE:** Expected sedimentation is discussed in Appendix K, Hydrology, Auburn Dam Chapter. The analysis conducted indicates that little sediment deposition is expected in the flood pool, a maximum of 26,200 acre-feet in 100 years. Most of the sediment movement occurs during floodflows and will pass through the flood control sluices and continue downstream as it does today. Two of the flood control sluices will be set at current streambed elevation to ensure the passage of this sediment. Should these deposits begin to impact flood control aspects of the dam, they

would be removed. The cost associated with the small amount of periodic sediment removal is included in the annual operation and maintenance cost.

1806 Sedimentation loads should be reexamined to determine dead pool space needed in upstream reservoirs and the TSP to accommodate this load; I doubt that upstream reservoirs contribute 100% of the basin's erosion and therefore they cannot be expected to capture most of the load.

1845 The Corps hasn't persuasively demonstrated that increases in sedimentation won't have significant environmental impacts to less-than-significant levels, provide adequate information and mitigation commitments in the revised DEIS including operation of sedimentation basins and resulting impacts.

1843 Appendix L and the DEIS are inconsistent regarding sediment deposition behind the upstream dam. The revised DEIS should address this inconsistency.

1845 The DEIS states that approximately 38,400 tons of sediment from construction is anticipated over three years but this value doesn't include sedimentation from aggregate mining or inundation of erosive and unstable canyon soils.

2113 Page DEIS 6-15, paragraph 3, Upper American River - Additional information and further discussion is warranted here. It is stated that as a result of storms and dry dam inundation events, suspended materials would be transported into Folsom Reservoir. There needs to be some assessment of the impact that increased sedimentation would have on Folsom Reservoir authorized purposes. Impacts on instream aquatic habitat below the damsite should be part of the assessment.

**RESPONSE:** Expected sedimentation is discussed in the Hydrology Appendix, Auburn Dam Chapter. The analysis conducted indicates that little sediment deposition is expected in the flood pool, a maximum of 26,200 acre-feet in 100 years. The analysis of sediment created during construction in the DEIS is slightly larger than it should be because of an assumption of too large a construction area. This has been revised. Much of the sediment created will remain on-site through the use of sediment detention basins in the areas of construction. Reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. Impacts due to the preferred alternative source for aggregate, Old Cool Quarry, are described in the Aggregate Source Chapter of Appendix M. The EIS has been revised to better describe any significant increases in sediment loads to Folsom Reservoir due to construction of the flood control project.

1340 We need to keep the river flowing to prevent pollution and preserve natural beauty.

**RESPONSE:** Flows through the flood control structure are described in Appendix L, Reservoir Regulation. The flood control project does not stop riverflows. It regulates floodflows to an extent that they do not cause downstream flood damages for most events.

1980 What is the volume of material likely to be washed and eroded off the canyon during routine and worst-case flood events?

**RESPONSE:** Expected sedimentation is discussed in Appendix K, Hydrology, Auburn Dam Chapter, and reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. It is not possible to compute volume of material for a specific flood event nor to determine amounts due to the effects of the flood control structure as compared to what would have occurred naturally.

1981 On page 16-17 the DEIS disclosed some new information about landslides. This should be discussed in more detail in the section dealing with geology and soils.

**RESPONSE:** Reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. The two slides mentioned on this page are discussed more fully in this Appendix.

1981 What kind of hazard is created by the landslides at River Mile 20.1?

**RESPONSE:** Reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. Only one slide has been identified in the area of the dam at River Mile 20.1. This slide will be removed during construction and will not cause a hazard.

1938 Visual impacts from areas along the river landsliding. These significant impacts should be discussed in soils and geology.

**RESPONSE:** Expanded information on reservoir rim stability is provided in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter.



1946 The EIS should provide more detail on probability and potential effects of sloughing during floods.

**RESPONSE:** Expanded information on reservoir rim stability is provided in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. A new chapter has been prepared that focuses primarily on soil stability in the project area. This chapter identifies project operations that may tend to destabilize soils and recommends further studies to maximize the understanding of soil stability.

2054 After the dam is built, floodwaters are likely to entrap additional sediment deposition behind the upstream dam. The revised DEIS should address this inconsistency.

**RESPONSE:** With the movement of the aggregate procurement area to the existing Old Cool Quarry, the number of settling ponds needed during construction will be greatly reduced. Of any remaining settling ponds, most will have their sediments removed and spoiled in designated areas. These areas will be shaped and vegetated to prevent erosion. If any ponds are left in the channel area, they will be shaped and vegetated to resist erosion.

1981 On pages 16-17, the DEIR discloses some new information about landslides that should be discussed in more detail in the section dealing with geology and soils.

**RESPONSE:** Reservoir rim stability is discussed in Appendix M, Geotechnical, Reservoir Rim and Slope Stability Chapter. The two slides mentioned on this page are discussed more fully in this Appendix.

2109 Page 2-4, paragraph 2, Flood Control Dam on the American River - Existing riverbed conditions above the Auburn cofferdam site demonstrates that substantial accumulation of sediment is likely. It is not appropriate to dismiss the problem without additional study. Further information on probability of sediment accumulation is needed since it affects quality of instream habitat.

**RESPONSE:** Expected sedimentation is discussed in Appendix K, Hydrology Appendix, Auburn Dam Chapter. The analysis conducted indicates that little sediment deposition is expected in the flood pool, a maximum of 26,200 acre-feet in 100 years. Most of the sediment movement occurs during floodflows and will pass through

the flood control sluices and continue downstream as it does today. Two of the flood control sluices will be set at current streambed elevation to ensure the passage of this sediment. Should these deposits begin to impact flood control aspects of the dam, they would be removed. The cost associated with the small amount of periodic sediment removal is included in the annual operation and maintenance costs.

2113 Page DEIS 6-15, paragraph 3, Upper American River - Additional information and further discussion is warranted here. It is stated that as a result of storms and dry dam inundation events suspended materials would be transported into Folsom Reservoir. There needs to be some assessment of the impact that increased sedimentation would have on Folsom Reservoir authorized purposes. Impacts on instream aquatic habitat below the damsite should be part of the assessment.

RESPONSE: Expected sedimentation is discussed in the Hydrology Appendix, Auburn Dam Chapter. The analysis conducted indicates that little sediment deposition is expected in the flood pool, a maximum of 26,200 acre-feet in 100 years. The analysis of sediment created during construction in the DEIS is slightly in error because of an assumption of too large a construction area. This has been revised. Much of the sediment created will remain on site through the use of sediment detention basins in the areas of construction. Reservoir rim stability is discussed in the Geotechnical Appendix, Reservoir Rim and Slope Stability Chapter. Impacts due to any extraction of aggregate from riverbars are described in the Aggregate Source Appendix. The EIS has been revised to better describe any significant increases in sediment loads to Folsom Reservoir due to construction of the flood control project.

## **SOCIOECONOMIC**

2138 Chapter 15 offers a completely inadequate discussion of mitigation. Growth and Development is discussed in practically every discussion of indirect impacts in the report. Yet in the first three short paragraphs on mitigation for socioeconomic impacts, an incredible statement is made: "No significant indirect project impacts have been identified." This is after impacts such as population increase is identified in the chapter.

**RESPONSE:** Indirect impacts and mitigation associated with growth and development are discussed in Chapters 4, 6, 7, 8, 10, 11, 12, 13, 14, 15, and 18 of the EIS/EIR.

2138 For direct socioeconomic impacts, no mitigation measures are proposed; only the statement that the Corps "would be responsible for mitigation of direct impacts".

**RESPONSE:** Please refer to Chapter 15, Socioeconomics, page 15-37, paragraph two of the EIS/EIR, under mitigation for a full discussion of this issue.

447 I would like to see some assurance that new development is not located in the deepest portion of the floodplain.

**RESPONSE:** Please refer to Chapter 4, Land Use, of the EIS/EIR for a discussion of this issue.

283 My family - one hundred years of kin - are from this area and will be negatively affected by this move.

**RESPONSE:** Comment noted.

355 The fundamental problem leading to the conflict over the best use of the American River is overpopulation. I urge you to use your position as public decision-maker to bring this issue into public scrutiny.

**RESPONSE:** Comment noted.

1979 There is no data to support your conclusion on pages 15-19 that there will be no growth inducement in El Dorado County from the relocation. The analysis of socioeconomic impacts on the upper American River is inadequate because of this assumption.

**RESPONSE:** Because the Highway 49 relocation would be an in-kind replacement that would not appreciably reduce commute times or facilitate access to northwestern El Dorado County, the relocation would not induce growth in this area.

1953 Section lacks discussion of how adverse impacts of the project will be spread in affected communities.

**RESPONSE:** Each individual section deals with the impacts associated with adverse impacts to affected communities from the project.

1998 Page 17-22 concerns local infrastructure projects but fails to discuss south Sutter County and the needed infrastructure projects to support development. No cumulative impacts on Sutter County are included in this section, but should be.

**RESPONSE:** See Growth-Inducing Impacts - Chapter 18.

1997 Water supply and solid waste section on page 15-27 does not discuss impacts of commercial and industrial development occurs in the Natomas Basin.

**RESPONSE:** Water supply and solid waste disposal for commercial and industrial development is based on a square footage of the development. Since this is not predictable, no forecast was made on usage or disposal.

5 The dam would eliminate an important source of local income that is currently generated through the recreational use of these free-flowing rivers.

**RESPONSE:** See Recreation Section of EIS/EIR. There will be little or no impact to the rafting activity in the American River.

1997 Chapter is deficient in discussing indirect impacts on the economy resulting from TSP. Page 15-28 accounts for only 58 acres of commercial/industrial development in Natomas that can't possibly include all the acres in the N. Natomas Community Plan, etc. The socioeconomic impact of these new employment centers needs to be addressed. The same concern is found in the discussion of the other alternatives.

**RESPONSE:** The 58 acres estimated for Natomas is a correct figure.

1938 The analysis of the subject on the upper American River is inadequate because of the false assumption that no growth will be induced. Analyze effects on all aspects of socioeconomics using the assumption that improved access to El Dorado County will be growth inducing.

**RESPONSE:** Because the Highway 49 relocation would be an in-kind replacement that would not appreciably reduce commute times or facilitate access to northwestern El Dorado County, the relocation would not induce growth in this area.

46 I think the push to build the dam is being fueled by developers who want to make money in Natomas. I don't like taxpayers helping developers become better off at the expense of wetlands and riparian habitat.

**RESPONSE:** This project has the objective of providing flood protection, primarily for existing development. This objective is discussed in Chapters II, IV, and V of the Feasibility Report and Chapters 2, 3, and 4 of the EIS/EIR.

2198 There is no support for the statement that population growth in the area would be unaffected if no action were taken because of the constrained development would take place elsewhere.

2240 Although the DEIS states that significant indirect impacts are not anticipated from the TSP or 200-year alternative; however, elsewhere it is noted that the TSP would allow a population increase of 61,000+ in Natomas, an increase of 8.1 million gallons of residential sewage, 260,000 lbs/day of solid waste, need for police and overcrowded schools.

**RESPONSE:** As stated in Chapter 15, Socioeconomics, Impact Section, of the EIS/EIR, development in the Sacramento region is expected to occur with or without the project. It is assumed that the

development will occur in other areas than Natomas, if additional flood protection is not provided, because of FEMA constraints.

While a flood control project will allow further development in the Natomas area, and to that extent benefit the Natomas landowners and developers, the project will not likely cause anyone to move to the Sacramento area that would not have moved here anyway. Therefore, the growth that will go into the Natomas area will be at the expense of growth in another part of the Sacramento area and at the expense of landowners and developers in that area. On a regional basis, therefore, development is not induced by the project.

2240 Please supplement the information regarding the socioeconomic characteristics of the lower American River to compare with the information provided for the Natomas or upper American River.

RESPONSE: Information for the lower American River (see Chapter 15 of the EIS and Appendix C) has been supplemented to reflect the same level of information as was provided for the upper American River and Natomas.

2240 The report states that no mitigation is required for indirect impacts. It is incorrect and misleading to state that no mitigation is required. The DEIS must analyze the range and extent of mitigation measures necessary to accommodate the significant population growth in the region resulting from the TSP.

RESPONSE: It is not the responsibility of the federal government to mitigate for indirect impacts. However, the EIS now presents in Chapters 4, 7, 8, 10, 11, 12, 13, 15, and 22 mitigation measures for indirect impacts which the local sponsor is expected to incorporate into the local planning process.

## **SURCHARGE SPACE**

2008 Develop and report the hydrologic and environmental effects of true operation of the Folsom facility, taking public trust responsibilities (e.g., protection of anadromous fisheries) into consideration before revenue generating activities.

**RESPONSE:** The purpose of this study was to identify a flood control plan and its impacts. Changes in the operation of Folsom for other purposes such as public trust or water supply were not investigated.

2010 Reoperation of the Folsom facility, using the hierarchy of responsibilities described above, will provide adequate flood protection and environmental enhancement of the lower American River. Public safety and environmental goals would be achieved at a taxpayer savings of hundreds of millions of dollars.

**RESPONSE:** Impacts associated with reoperation of Folsom Reservoir are described in the EIS.

## **TRAFFIC-AUBURN**

1936 A more detailed analysis of traffic impacts in downtown Auburn is needed. If Highway 49 is realigned, traffic volumes will increase. What impact will this increased volume have on traffic patterns, traffic safety, and traffic capacity in Auburn?

1935 The proposed mitigation measures are inadequate because they defer environmental assessment until after the EIR is certified. To rely on illusory mitigation measures such as future studies is clearly a violation of CEQA.

**RESPONSE:** The preferred Highway 49 realignment is unknown at this time. Several alternatives are still under consideration. These alternatives include alignments which bypass Auburn and, therefore, the ultimate alignment may not necessarily impact downtown traffic conditions. The State of California has indicated that it intends to perform the route adoption studies which includes the transportation impact analyses and mitigation planning that will ultimately lead to route selection. These studies may result in an alternative alignment based on the long-term transportation needs of the area independent of the flood control project. Consequently, due to the uncertainties involved in the route selection process, it would be premature to conduct detailed traffic studies of all possible routes at this time. These studies will be conducted as a part of the State's Route Adoption Studies, which are discussed in Chapter 11 of the EIS/EIR.

1935 Information is needed on haul routes, the number of trucks per day, traffic congestion, and safety impacts. This information should not be neglected to future study after the report is certified. This information is vital to determining the significance of the impact and developing adequate mitigation.

1935 On what basis has it been determined that truck traffic mitigation will reduce impacts to a less than significant level?

2231 Is the haul road which is referred to for the first time on page 12-15 to be constructed in the Middle Fork of the American River canyon? If so, there would clearly be significant adverse environmental effects which the DEIS does not address.

**RESPONSE:** Additional information and mitigation has been added to the final EIS/EIR in response to this comment. Traffic impacts are reduced to less than significant through avoidance of peak-hour



hauling which is when transportation conflicts are greatest. Refer to Chapter 11, Transportation.

## TRAFFIC-NATOMAS

- 1996 Natomas discussion should be clarified as to whether it pertains to city portion or entire basin. Report should mention major direct impact of no-action alternative in exposing basin to floods of up to 20 feet, resulting in the loss of use and destruction of most local and interstate roadway, and damage to metro airport.
- 1996 Major direct impact of no-action alternative on downtown Sacramento and lower American River areas is the exposure to flooding 5-15 feet deep, causing substantial damage to transportation systems for local and interstate travel.
- 2231 The report should recognize that the indirect impacts of the project on traffic in Natomas would likely be worse than anticipated under buildout of the South Natomas and North Natomas Community Plan areas since the project will permit and encourage growth in excess of that foreseen in these plans.
- 2231 Please provide a discussion of the proposed Main Avenue Bridge replacement, and the environmental impacts associated with the replacement.

**RESPONSE:** In response to comments regarding Natomas area traffic impacts, the results of a detailed Natomas area traffic study (including both city and county roads) have been incorporated into the final EIS/EIR, Chapter 11, Transportation Section. Additional information includes: proposed haul routes, number of project-related trips per day, existing and existing plus project traffic conditions along proposed haul routes, potential safety impacts and mitigation measures for all potentially significant impacts identified. A review of the potential transportation impacts associated with the no-action alternative has also been added to the final EIS/EIR. Refer to EIS/EIR Chapter 11 for a complete discussion of transportation-related impacts and mitigation measures.

- 2167 Draft EIS/EIR, page 12-8 states that "since the growth constrained by inadequate flood protection would likely be absorbed elsewhere in the region, the effect of the no-action alternative on regional traffic would be minimal." Traffic impacts from growth elsewhere would be much greater than from growth in Natomas.

**RESPONSE:** The comment is acknowledged; however, the comparative environmental effects of accommodating growth in Natomas as opposed to other parts of the region are difficult to assess without

knowing the location of the alternative development areas and the character of the development likely to occur there.

## TRAFFIC-UPPER AMERICAN

- 1936 How many miles of additional roads for construction of the damsite, the Highway 49 realignment, access to aggregate mining site, and dam construction will need to be constructed? What environmental impacts will this road construction have? Will roads be revegetated after use? What type of soil erosion control will be used?
- 1979 What impacts will these increased traffic volumes have on traffic patterns, traffic safety, and traffic capacity at Auburn?
- 1935 Your report does not adequately address construction-related impacts on traffic. You need to analyze haul roads to be used during construction and identify the haul roads with the least impacts.
- 1658 Your report needs further detail on traffic impacts. Specifically, 8 to 10 trip ends/units/day = 1.9 to 2.4 million trip ends, excluding commercial/industrial uses. This is significant.
- 1935 On what basis has it been determined that truck traffic mitigation will reduce impacts to a less significant level?
- 1936 A more detailed analysis of traffic impacts in downtown Auburn is needed. If Highway 49 is realigned, traffic volumes will increase. What impact will this increased volume have on traffic patterns, traffic safety, and traffic capacity in Auburn?
- 1935 The proposed mitigation measures are inadequate because they defer environmental assessment until after the EIR is certified. To rely on illusory mitigation measures such as future studies is clearly a violation of CEQA.
- 2231 Please describe the anticipated effects (on transportation) of the construction and operation of the conveyor belt.
- 2230 Based on the CALTRANS Route Concept Report discussed in the Cumulative Impacts chapter, it is very clear that it is at least reasonably foreseeable that Highway 49 will be relocated to a place other than where the chapter examines. It is therefore inadequate for failure to analyze the impacts of this foreseeable part of the project, including growth-inducing effects.
- 2231 Please examine the impacts of any road closures necessitated by construction of the project. For instance, explain what part of Highway 49 would be closed during construction, the

locations to which traffic would detour during construction, and the impacts of such detour traffic.

2230 The transportation analysis does not describe the difference in commute time between the existing Highway 49 and the realigned route the Corps would participate in.

**RESPONSE:** A description of construction-related traffic impacts in the Auburn area and proposed mitigation measures is included in Chapter 11 of the EIS/EIR.

## **UPPER CANYON GROWTH ISSUE**

935 Please consider a dry dam and not a large dam like the agricultural Auburn development groups want.

113 The whole state doesn't need to pay for the growth of Placer and El Dorado Counties via the power and water from a big Auburn Dam.

**RESPONSE:** The Selected Plan provides for construction of a flood control-only facility at Auburn, which would be designed to neither advance nor impede possible future expansion of the facility for water and power (see EIS/EIR Summary - Environmental Conclusions and Findings).

1202 I'm not in favor of making it profitable for people to own the tops of those foothills.

**RESPONSE:** The Selected Plan should not influence such secondary impact activities. Federally owned project land is expected to be retained by the respective federal agencies, with the State acquiring flowage easements from private landowners to occasionally flood the lands. The detention dam would not directly affect land prices since the purpose of the project is flood control and, therefore, it does not provide water supply. Growth in the upper canyon area is limited by several factors such as water, sewage treatment, adequate schools and infrastructure in addition to the general state of the economy (see EIS/EIR, Chapter 18, Growth-Inducing Impacts, Upper American River Section).

1656 Indirect impacts of growth inducement are completely ignored. Holding land use projections to 2010 because of uncertainty is a reoccurring example of not discussing significant impacts because it is too difficult to find answers. This is not acceptable.

635 Construction of the dam would cause an escalation of property values and create an onslaught of commercial and residential development, with consequent garbage, sewage, and energy requirements.

1980 DEIR falsely states that growth inducement would occur only if an alternative route is adopted from the one proposed.

**RESPONSE:** Land use projections outside of those indicated in the adopted City and County General Plans are outside the jurisdiction of the federal government. In addition, it is the responsibility

of local government through zoning ordinances and adopted planning policies to regulate future growth. An alternative scenario assuming maximum growth and buildout was developed, in general agreement with this comment, and is presented in Appendix E, Land Use, for the purpose of comparison.

1938 Analyze the impacts of El Dorado County from improved access to Highway 49. The reasons why the improved access will occur are discussed in your report, but it is false to say that growth inducement would only occur if an alternative route is adopted from the one proposed.

2122 By the way, there is no assessment of the impact on growth in El Dorado County due to construction of the bridge.

1903 The bridge over the water and realignment of Highway 49 would have growth-inducing impacts that aren't addressed in the report.

2262 The study states that in-kind realignment of Highway 49 will not induce growth. History has shown that growth follows highway corridors. The combined effect of planned growth in Natomas and unplanned growth in the foothills will result in many environmental impacts.

2257 The TSP would facilitate the construction of a new Highway 49 bridge across the American River. This improvement in commuter accessibility would induce growth and cause the removal of vegetated open space to urbanized use.

**RESPONSE:** Please refer to the revised discussion in Chapter 18, Growth-Inducing and Cumulative Impacts, of the EIS/EIR. Relocation of Highway 49 to a higher elevation, but still within the canyon, will not result in a significant increase in growth in El Dorado County. This conclusion is due to (1) only a slight increase in travel time and (2) acknowledgement that other factors, primarily water supply, infrastructure, and sewage treatment, act to limit such.

## UPPER AMERICAN LAND USE

1411 Trails now in place would be turned into motels and restaurants.

**RESPONSE:** There will be little or no indirect impacts in the upper American River area related to the in-kind replacement of Highway 49 since commute times would not be significantly reduced. (See DEIS/EIR Land Use, Upper American River, Indirect Impacts.)

2250 The Corps is aware that existing general plans may be modified in the future to account for newly adopted air and water quality plans. However, because of the inherent speculative nature of land use forecast, the land use analysis is based upon existing adopted general plans.

**RESPONSE:** Comment noted.

2071 We fear land will be preserved around the dam project, precluding their availability for a multipurpose dam.

**RESPONSE:** Flowage easements primarily would be acquired on about 6,000 acres for the flood detention dam. Most of these lands are currently in federal ownership. It is believed that the ownership of lands adjacent to the project lands would remain in essentially the current ownership, since this report does not recommend any change in ownership patterns except those discussed above. Please refer to Chapter VII of the Feasibility Report, and Appendix O, Real Estate, for a more detailed discussion.

2145 The acquisition of lands and easements would be the responsibility of the nonfederal sponsor since it is a single-purpose flood control project. It is noted in the report that 75 percent of land is in federal ownership and will be retained. Nonfederal sponsors would have to acquire easements from private landowners and USBR. This places a burden on them. Suggest that it would be easier to recommend the transfer of all such federal lands and easements to them.

**RESPONSE:** Intrafederal transfers of land would, in fact, take place in order to obtain land for the construction, operation, and maintenance of the proposed flood control dam and related facilities. Please refer to Chapter 4 (Land Use) and Appendix O (Real Estate) of the FEIS/EIR for further discussion of this matter.



2172 Appropriate conditions should be met, including the preservation of the land around the site.

**RESPONSE:** Most of the land surrounding the proposed dam is owned by the federal government. It is assumed that this land will be preserved in public ownership and managed for recreational purposes until a final decision is made on how the natural resources of the canyon area should be developed. Please see Chapter 4 (Land Use) for a more detailed discussion of this matter.

## **VISUAL IMPACTS**

1774 Will you make public disclosures of how the dam will look physically each year?

**RESPONSE:** No public disclosures of how the dam will physically look each year are planned, nor does such a disclosure seem warranted. The dam will essentially look each year as it is depicted in Chapter 16 of the EIS/EIR.

2146 Chapter 16, page 16-13, tries to picture the deep borrow pits as a visual asset. No information is provided to support such a statement. How can this statement be made when the whole issue of aggregate mining has not been studied?

2080 Severe aesthetic damage will occur due to scouring of seven miles of the Middle Fork of the American River and from flooding of both the North and Middle Forks.

1866 The dry dam would create an eyesore with the exposed strip mine behind it.

1199 The dry dam will create an environmental eyesore to the people of El Dorado and Placer Counties by creating a giant mud hole with a huge strip mine upstream.

1569 The visual quality degradation would occur through construction.

2265 Three basic impacts to visual resources are erosion, aggregate extraction, and Highway 49 realignment. None of them is addressed with sufficient information to make an informed decision.

2265 Erosion and slope failure will cause significant visual impacts as it will destroy vegetative ground cover that helps define the high visual quality enjoyed by visitors.

**RESPONSE:** Please refer to revised Chapter 16, Visual Resources, regarding direct impacts to the upper American River under the Selected Plan, Appendix M, Geotechnical Investigations, for an extensive analysis of aggregate mining and Chapter 17 for a thorough discussion on the Highway 49 realignment. Source material for construction of the dam would be supplied by Old Cool Quarry, an existing mining operation located near Highway 49 on the Middle Fork of the American River. Use of this operation would intensify; however, it would not leave strip mining scars or borrow pits along the river channel. Although there are existing disturbed areas near the damsite, construction of the site may cause further damage

to existing vegetation; therefore, these disturbed areas would be revegetated to a natural environment, over time.

Erosion in the upper American River is not as much of a concern as the construction and existence of the flood control dam. However, it is expected that some slight amount of landsliding would occur as floodwater recedes. These slides would occur over time regardless of the presence of the flood control dam. Revegetation would minimize the visual impacts of the landslides, over time.

1843 It isn't clear if the area behind the dam would look much as it does today as stated in the DEIS. Impacts to the aquatic environment and transport of silts seem likely.

RESPONSE: Please see the revised Chapter 16, Visual Resources, for a photosimulation of the area behind the dam. Impacts to the aquatic environment are discussed in Chapter 7, Fish, Vegetation, and Wildlife. Impacts associated with the transport of silts are discussed in Chapter 6, Drainage and Water Quality, and Appendix M, Geotechnical Investigations.

2265 Adverse impacts of the dam on the upstream canyons are noted but then completely ignored. Evidence presented in the report suggests that impacts are not benign or easily mitigated. For that reason, "could adversely impact" should be changed to "will adversely impact."

RESPONSE: Please see the revised Chapter 16, Visual Resources, for a revised discussion of project impacts on visual resources. The use of "will adversely impact" implies that the project has been approved and that these impacts are eminent. On the contrary, the project has not been approved; therefore, the use of "could adversely impact" is used to describe what may occur if the project was built.

1825 USF&WS says 1,771 acres will be directly impacted (visually) due to highway improvements and induced impacts. The Corps says there won't be any visual impacts. This discrepancy must be addressed.

2242 The visual impact of damage to the canyon as predicted by FWS should be described.

RESPONSE: Please see revised Chapter 16, Visual Resources, for a revised discussion of project impacts on visual resources.

2267 The DEIS fails to account for the growth patterns associated with road realignment that could easily lead to a loss of visual qualities. The real question is what exactly are the indirect impacts of Highway 49's realignment and how will it affect visual quality of the area. The DEIS should address that issue in more detail.

2241 Assuming that a reservoir behind the dam would permit growth in the upper canyon, the EIS should analyze the visual impacts of such growth.

**RESPONSE:** Refer to revised Chapter 16, Visual Resources. Indirect impacts caused by the realignment of Highway 49 are not expected since the project would not significantly alter traffic patterns. The Highway 49 relocation will be in-kind, in-place. Further discussion of potential future alignments of Highway 49 is discussed in Chapter 17. The effect of regional growth of adopting one of these potential alignments is discussed in Chapter 18.

1511 The canyon is a lovely area that should be saved for public use.

**RESPONSE:** The canyon would remain open for public use with the exception of closing the damsite and conveyor system alignment to public access during the estimated 2-year construction period. Once construction was complete, these areas ( with the exception of the actual dam) would no longer be closed to the public.

1769 Your proposal doesn't adequately address the loss faced by people whose homes are above the canyon.

**RESPONSE:** Refer to revised Chapter 16, Visual Resources, for a description of visual impacts of the Selected Plan, Chapter 4, Land Use, and other various chapters of the EIS/EIR and Appendices G, H, and Q for a description of the canyon. The canyon would remain virtually unchanged from the preproject conditions except for temporary debris deposits following inundation. It is expected that these deposits will be washed downstream during the period of time after the storm recedes and that the portion immediately upstream of the dam will return to a condition which is much like it looks today.

1266 This project will alter and damage beautiful California property, with steady encroachment of civilization on natural lands.

**RESPONSE:** Please see Chapter 18, Growth-Inducing Impacts, for discussion on anticipated induced growth of the upper American River region. In addition, see Chapter 4 discussion of existing conditions and limitations to growth in this area.

2242 The statement is made that, viewing the damsite from a distance, the landscape would not be dominated by the dam. How far away does a person have to be from the damsite for the dam not to dominate the landscape?

**RESPONSE:** The distance from the damsite is relative for each person as visual impacts are subjective to each person; therefore, there is no exact distance in which a person must be in order for the dam not to dominate the landscape. In general, views of the dam from progressively distant viewing sites would incrementally lessen dominance due to the increase of visual components influencing the view.

2241 The visual impacts analysis relies on revegetation of sites disturbed during construction, but does not indicate how long revegetation will take.

**RESPONSE:** The establishment period for vegetation varies according to site characteristics, revegetation methods, growing conditions, and a number of other variables. See Chapter 7, Fish, Vegetation, and Wildlife and Appendix Q, Mitigation Plan, for further discussion of habitat value and vegetation recovery.

2241 The photo simulations should be revised to accurately reflect the TSP, which would be higher than the 200-year structure pictured. Without the photo simulation of the 400-year plan, one doesn't get to see the actual height of the dam or the actual inundation area.

**RESPONSE:** See revised Chapter 16, Visual Resources. The simulated photographs portray the 200-year flood control dam which is the Selected Plan.

2242 Please explain how the debris deposited after inundation would become visually less prominent over time periods between inundation.

1917 Inundation of the canyon, whether temporary or permanent, would degrade the canyon's scenic and historical values.

2024 A huge bathtub ring will extend the length of the canyon on both sides for as far as the eye can see. The level of the lake will fluctuate and create an eyesore.

**RESPONSE:** Please see revised Chapter 16, Visual Resources. Direct impacts to the upper American River caused by floodwater may be visible at first; however, subsequent rainstorms would wash most of the sediment from the plants and rocks. Over time, this material would decompose and become covered by vegetation. Debris and increased soil moisture levels may induce growth. In addition, significant loss of plant life caused by inundation is not anticipated due to the high probability that flooding would occur during the dormant season of most plants. See Chapter 7, Fish, Vegetation, and Wildlife and Appendix Q, Inundation Impact Analysis, for further discussion.

2241 The Corps states that there would be an abnormally high number of smaller slides possibly triggered by temporary reservoir. How many slides do they expect? What are the plans for mitigating this effect? What will the visual impacts be if most of the landslides occur after the first flood?

**RESPONSE:** It is not possible to determine the number of landslides that may be triggered by the receding reservoir. An attempt to estimate the amount of acreage which is prone to slide has been made. For further discussion and information on landslides within the American River canyon, please see Appendix M, Evaluation of Soils and Soil Stability for the Proposed Flood Control Dam at Auburn. See revised Chapter 16, Visual Resources, and the Mitigation Plan, as these chapters describe visual impacts anticipated due to landslides in the canyon, and plans for mitigating impacts, respectively.

1938 Visual impacts from areas along the river due to landslides are considerable and should be discussed in the Soils and Geology Section, as well as Visual Impacts Section.

**RESPONSE:** Please see revised Chapter 16, Visual Resources. Visual impacts caused by landslides are addressed. The EIS/EIR does not include a chapter on Soils and Geology; however, for further discussion on soils and geology see Appendix M, Geotechnical Investigations.

1998 Chapter fails to discuss visual impacts from flooding resulting from the no-action alternative.

**RESPONSE:** There would be no new visual impacts caused by the no-action alternative. This alternative would cause existing visual resources in the Natomas Basin to remain the same, as it would deter urban development in the area. The lower American River would have minimum changes in visual resources as new development would be infill to existing urbanized areas.

1859 Please look at alternatives that will not destroy the beauty of the canyons.

**RESPONSE:** The DEIS considered six alternatives in detail. Four alternatives did not propose a dam structure at Auburn. Careful analysis did not support these alternatives as superior solutions to flooding downstream, however. Please see Chapter 2, Project Description and Rationale, for further discussion of project alternatives.

514 I urge you to reconsider the destruction of this scenic habitat so important to the well-being of this planet.

802 The American River is so beautiful and it should be preserved.

1181 The beauty of the American River hasn't been diminished by Folsom Dam, nor will it be diminished by Auburn Dam.

1548 Your dam would destroy one of the remaining pristine wilderness areas in California.

1223 Do not destroy the natural beauty of the canyons. Preserve the river in its natural state.

502 I am concerned about the destruction of the American River as an aesthetic area.

1009 I think that you will destroy the natural beauty of the American River if you build a dam.

991 Instead of dam we should save the beautiful canyons.

868 It is such a wonderful area and I feel the dam will greatly detract from its beauty.

1892 The dam will destroy the natural beauty of the American River canyon.

2044 The dam would destroy all of the beauty of the canyon.

- 1224 You will be taking the beauty away from the land of build this dam.
- 1203 Folsom is very, very ugly in the wintertime (when it isn't full) and a dry dam would be too.
- 1492 Modifying the canyon for flood control will destroy the awesome character it now offers.
- 1350 The natural beauty of the South Fork of the American River needs to be preserved.
- 1500 The river is a national asset. Modifying it for flood control will destroy the awesome character it now offers.
- 1398 A big dam won't look nice.
- 414 Consider the totality of this community and preserve not only homes and businesses, but also some of the area's scenic beauty.
- 1516 The beauty of the canyons cannot be coached in terms of acceptable loss to gain flood control.
- 750 The North and Middle Forks and their canyons are pristine and beautiful. They should not be sacrificed unnecessarily.

**RESPONSE:** Since the dam's only purpose is flood control, water would only be impounded behind the dam above the river scour zone for short periods of time (5 to 20 days) on an intermittent basis (on an average of only once every 5 to 10 years). These periods during which floodflows would be temporarily detained will occur during the winter rain periods when recreation is not generally taking place in the American River canyon; thus, impacts on recreational use of the river should be small. The environmental studies also confirmed that the vegetation and wildlife in the canyon can return unhampered once the winter flood detention recedes behind the flood control dam and that the visual and scenic value of the area will not be diminished. Please refer to Chapter 7 of the EIS/EIR and Appendix Q for a detailed discussion.

- 2242 Please describe the incidence of dust storms on Folsom Reservoir during drought years and the drawdown for Mormon Island repair.

**RESPONSE:** Please see revised Chapter 16.



2241 The analysis should examine the impacts of the foreseeable closing of the sluices on a long term basis, with submersion of the basin behind the dam.

**RESPONSE:** Please see revised Chapter 16.

## WATER SUPPLY NEEDS

- 11 The declining water table is not adequately addressed. There are limits to conservation that should be fully evaluated.
- 12 Your conclusion dealing with water supply is misleading. The need for additional water resources is present. Any project must keep the water storage option open.
- 28 In light of the current drought, it is important that you  
136 consider water supply in your project.  
759  
780  
990
- 38 Why not use water supply as the number one issue? How long can the State supply water for millions of people on a water supply designed for a population 30 to 40 years ago.
- 39 A recent article indicated that the need for increased water supply is 25 times greater than the source at Folsom Lake can provide. If our rates went up 25 times, it would be an unreasonable sacrifice for all of us to make because Auburn Dam isn't built.
- 64 I have read that the dam would supply only one-tenth of the State's water requirements. Surely this is not a valid reason to build it.
- 106 Good water management will solve water supply.
- 140 I think the proposed dam is a smoke screen or an excuse for water ranching, which has been big business here in California.
- 277 There has not been a major water storage dam built in this area for 30 years and yet the population and its water needs have doubled and doubled again.
- 526 The water produced by this project would be too expensive for  
528 anyone to buy.
- 690 Alternatives to increased water consumption should be encouraged.
- 842 The dam won't facilitate water storage since Folsom already stores all of the water which would be stored by Auburn Dam.
- 873 Storage of water is desperately needed in California. We lost our ranch because of lack of water. When are you people going to wake up to what the public wants?

- 1115 We agree with the Corps' conclusion that the American River Basin needs an additional water supply.
- 1152 California needs water conservation and power development, not for such a limited dam.
- 1166 Some think there is no market for the water, but I disagree. Most people I have spoken to would be willing to pay additional water charges to ensure an abundant supply to meet health, safety, and environmental needs.
- 1189 California has 2 million acre-feet of overdrafted ground water in an average year and 2,000 new mouths to feed every day. We can't afford to waste our water and energy opportunities with a dry dam.
- 1199 The dry dam won't offset water flows in the lower American River and Bay/Delta as more surface water is used in lieu of our depleted ground water.
- 1180 Sacramento County needs surface water to stabilize ground water basins, serve future water demands, maintain water levels in Folsom Reservoir for recreation, and maintain flows in the American River for wildlife, fishing, and recreation.
- 1203 We need water pretty badly and we're still in the five-year drought.
- 1660 Report needs more detail on San Joaquin's future water needs and their application for water appropriation from American River. Water resource opportunities for instream flows and supply for fisheries and hydropower should be incorporated into project alternatives and studied. This should be accomplished prior to releasing final Feasibility Report.
- 1690 We are in a drought. We don't need flood control, we need water supply.
- 1742 Future water needs are overstated because no economic impacts on future demand are considered.
- 1865 A dry dam will increase the draw on our precious ground water.
- 1868 Water needs of San Joaquin County were never mentioned in the report.
- 1875 We support additional water supplies.
- 1882 During last year, the fourth year of a drought, Placer County sold 80,000 acre-feet to Westlands Water District. It was equivalent to water for over 40,000 people. So the need for water is not proven by that action.

- 1891 Farmers will have to cut consumption 50-75 percent, therefore losing crops and creating unemployment if something isn't done to improve the water situation. Environmentalists say that we are going to have more droughts so we need every drop we can save. That's why I favor a multipurpose dam.
- 1911 Los Angeles just might pay \$200 acre-foot for the water behind a multipurpose dam.
- 240 The answer to Southern California water demands is to construct de-salinization plants, not build a dam.
- 1924 The water permits issued to the Bureau of Reclamation have  
1971 expired. The SWRCB has not acted on BOR's new development schedule because a final project had not been identified.
- 2269 The counties of Placer, El Dorado, San Joaquin, and the water agencies and districts in four counties have quantified their present and future water delivery needs, and concluded that the water component of a multipurpose dam can be funded by these local agencies.

RESPONSE: The ARWI proposes the construction of a flood detention dam. Water will not be stored behind the dam for future consumptive use, but will only be detained behind the dam with flow regulated out to Folsom Lake as the storm recedes. The design of the proposed flood control dam is fashioned so as to neither hinder nor advance the possible expansion to a multipurpose dam. The Congressional authorization for the investigation did, however, direct the Corps to perform a reconnaissance-level water needs assessment for Sacramento, El Dorado, and Placer Counties.

The water needs assessment developed by Department of Water Resources indicates that additional water supply is needed in the study area. Before a project to develop water to meet these needs could proceed, financing would have to be secured for the costs of the various benefits that the project will provide, additional environmental documentation prepared and reviewed, and the appropriate congressional and legislative authorization obtained. Recently, a cost-sharing agreement was signed by the U. S. Bureau of Reclamation, Sacramento Metropolitan Water Authority, American River Authority, Sacramento County Water Agency, San Joaquin Flood Control and Water Conservation District, and DWR to conduct the American River Water Resources Investigation.

The purpose of the study is to assess in more detail the water needs in the American River region, and evaluate the need for and the feasibility of developing additional water resources. Management of all available sources of water (including conservation, best management, ground water overdraft, conjunctive use of ground water, American River instream needs, and surface water resources) to meet identified water needs will also be

addressed in that study. The urgent need for flood protection in the Sacramento area requires that the flood control project advance while the study and debate over a multipurpose dam continues.

- 15 Supporters of Auburn Dam tell us the only way to guarantee sufficient water supply is to build another dam but we should look at other options first such as water meters and reworking ag water practices.
- 113 Water policies need to be reviewed and changed toward conservation in view of the substantial population growth we're experiencing.
- 304 Additional water storage is only a band-aid approach to the problem of runaway population growth and water usage and will enrich only developers and others in the business chain.
- 333 We should emphasize water conservation as opposed to further storage capacity. Stockton has realized a 20 percent water reduction without hardships.
- 433 Conservation of water would be a better idea or water rationing rather than a dam.
- 665 The Corps needs to use its technical expertise to aid in water recycling, conservation, distribution, and other engineering maneuvers to ensure the growing population water without a dam.
- 689 You should encourage water conservation and drip irrigation systems in lieu of more dams.
- 701 Shrewd water utilization and energy usage would negate the need for the dam.
- 707 We need new methods of water conservation and should stop selling water during drought years.
- 708 Water conservation methods by agricultural users could save more water than Auburn Dam will provide and at less cost.
- 715 The amount of water that would be available to the public could be either conserved by people or 10 percent of the money required to build the dam could be used instead to repair levees and the water supply system.
- 783 Water conservation is the answer rather than dam construction.
- 784
- 794

1098 Any demand for power or water could be met through better water management policies in California.

1370 Before any more dams are built, there should be a sincere effort to use what water we have more efficiently.

1531 Water storage is not needed if agribusiness modified its watering methods.

1613 It is more economically sound to conserve water than build this dam.

**RESPONSE:** Water conservation has been addressed by each of the water agencies in the study area, with each water agency developing water conservation plans. At the State level, water conservation and best water management practices are key elements of the California Water Plan which is updated every five years. The economics and environmental impacts of a full range of water supply strategies are examined in this plan, due to be updated next in 1992.

1846 If the BOR intends to seek an alternative water supply if Folsom Reservoir becomes unavailable for meeting CVP contracts, then the impact of a new water supply project as a reasonably foreseeable future action should be discussed in the revised DEIS.

**RESPONSE:** This issue is discussed on page 17-8 of the EIS.

## **WATER QUALITY**

1824 Page 4-14 states that aggregate information will be included in the FEIS. Will this information be circulated like the DEIS? If not, the public and agencies are illegally excluded from the plan formulation process. Will alternative sites be developed per CEQA?

1846 Aggregate sediment should be tested to determine if contaminants are present which could impact water quality through inundation or excavation.

**RESPONSE:** Pertinent sections of the Main Report and the EIS/EIR have been revised to describe expected impacts on water quality due to a change in construction material source from the riverbars to an offstream existing quarry near Cool. This information will be available for public review through the Washington-level review center.

1844 The DEIS doesn't explain what operational changes at other facilities in the CVP may contribute to adverse impacts in the Sacramento River system.

1845 The Corps should evaluate the effect of temporary or permanent reoperation at Folsom on the operation of other CVP facilities and on the ability of BOR and the Corps to meet current and future water quality standards for the American and Sacramento Rivers. Explain operational rules, impacts, and mitigation.

**RESPONSE:** We concur that alternatives including the permanent reoperation of Folsom Reservoir would have some adverse impacts on other CVP system elements. The Selected Plan will not require that operational changes be made at Folsom or at other facilities in the CVP and would not have impacts in the American and Sacramento River Systems. If the State and federal governments decide to revise the operation at Folsom Reservoir, those impacts will first be fully analyzed in public disclosure documents prepared to comply with NEPA and CEQA.

1846 The potential sulfuric acid formation and leaching of hazardous and toxic materials due to inundation of old mining sites and dredge spoils should be analyzed in more detail in the revised DEIS.

**RESPONSE:** Impacts resulting from inundation of dredger tailings have been analyzed by the State Regional Water Quality Control Board with the determination that no problems will result so long

as these areas are not excavated. Additional information has been added to Chapter 6 (Drainage and Water Quality) of the EIS/EIR.

1846 Appendix G (Section 404 Evaluation) states that violations of water quality standards or introduction of contaminants which would adversely affect water quality are not anticipated. This conflicts with information in the Main Report and DEIS.

**RESPONSE:** The information contained in Appendix G has been made consistent with information contained in the Main Report and the EIS.

1434 By reducing peak flows into the bay, this dam will only deteriorate the estuary further.

1082 The dam would change flows, causing the composition of water through the Delta to change. This would cause major problems with fish and/or other wildlife.

**RESPONSE:** Pertinent sections of the Main Report and EIS/EIR revised to indicate that operation of the Selected Plan would have a beneficial impact on water quality and related conditions in Sacramento/San Joaquin Delta and San Francisco Bay. During major storm events occurring over the American River Basin, floodwaters would be temporarily detained to take the peak off of the flows through the lower American River. The same quantity of water would still be delivered within a few days to the Delta and San Francisco Bay during storms. Also, preventing flooding in the Sacramento and Natomas areas eliminates the potential for floodwaters to accumulate hazardous or toxic substances stored in the floodplain and transmit them to the Bay/Delta system.

1657 The project description should describe the sediment load to determine impacts to water quality and wildlife.

**RESPONSE:** Appropriate information has been added to Chapters 6 (Drainage and Water Quality) and 7 (Fish, Vegetation, and Wildlife) to address possible impacts to water quality and wildlife resulting from sediment.

2135 Mitigation measures are offered for water quality impacts due to construction in both the upper American River and Natomas areas. But no measures are discussed for impacts identified on page 6-15 as resulting from normal project operation.



**RESPONSE:** Specific mitigation measures are not identified for impacts resulting from normal project operation because this mitigation is incorporated into the total mitigation package. Additional language has been added to Chapter 7 (Fish, Vegetation, and Wildlife) and to Chapter 22 (Mitigation and Environmental Monitoring) to clarify this issue.

1845 Under CWA (Clean Water Act), the Corps must demonstrate that it has considered construction and operation alternatives that don't increase water temperatures or adversely affect anadromous fisheries and not merely describe the extent of noncompliance with CWA responsibilities.

**RESPONSE:** The Selected Plan does not result in increased water temperatures and will not adversely affect the anadromous fishery resource in the lower American River.

2132 The report is much more successful in applying appropriate detail to discussions of existing conditions than to projected impacts. Chapter 6 is an example. The discussion of water quality impacts uses some vague and undefined terms. In addition, the estimate of sediment loads in the upper American River is miscalculated by an order of magnitude. No mention is made of possible effects of increased nutrients in Folsom Reservoir.

**RESPONSE:** Clarifying language has been added to define possible impacts to water quality and the source of aggregate has been changed from the Middle Fork bars to the existing quarry near Cool.

1846 Proposed mitigation measures may not be sufficient to reduce water quality impacts to less-than-significant levels. The Corps should investigate other measures to avoid, minimize, or compensate for impacts to water quality.

**RESPONSE:** The Corps' position is that the proposed mitigation will reduce potential impacts to water quality to less than significant levels.

2138 Table 1-4 presents mitigation measures likely to be proposed. This (Table) does not include many mitigation measures discussed in the impact chapters or even some discussed in Chapter 22. For instance, no measures are adopted for air and water quality impacts, though both are discussed in their

respective chapters, and air quality is the subject of the MOU. No findings of feasibility are presented, and no reason given for the likely selection of any measure.

**RESPONSE:** The Environmental Conclusions and Findings Section of Chapter 1, Summary, of the EIS/EIR has been revised to include all of the commitments to mitigation measures for direct project impacts. The rationale for selecting the mitigation measures is discussed in the respective chapters at the EIS/EIR. The MOU describes the procedure which the project sponsors are committed to follow in coordinating and evaluating the impacts. The implementation of mitigation for secondary or indirect impacts is also discussed.

2211 The DEIS should discuss whether construction activities may result in violations of the numerical water quality objectives recently adopted for a wide range of pollutants in the Inland Surface Waters Plan.

2210 Update the discussion of water quality objectives on pages 6-4 to 6-7 to address the implication of the Inland Surface Waters Plan adopted by the State Water Resources Control Board on April 11, 1991.

**RESPONSE:** The numerical water quality objectives in the Inland Surface Waters Plan recently adopted by the State Water Resources Control Board cover heavy metals, pesticides, and a number of organic constituents. It is not expected that any of these constituents will be introduced into the river during construction. Contractors will be required to have a plan for proper disposal and storage of chemicals or fuel necessary to run equipment prior to working onsite. Mercury-laden sediments may be resuspended during construction but the water quality objective for mercury is not expected to be exceeded since the mercury in the sediments is in its inorganic form which is highly insoluble in water.

2212 The report states that implementation of BMP's would reduce but not eliminate the potential for occasional violations of EPA standards. The DEIS should identify, as mitigation measures, the BMP's that likely will be used to minimize water quality impacts.

**RESPONSE:** The Drainage and Water Quality Section (Chapter 6) of the draft EIS/EIR contains the recommended best management practices (BMP's) for each construction phase to minimize water quality impacts.

2210 What is the basis for determining that any impact would be significant? Provide any data that indicate whether the water quality impacts of flooding would be substantially different than those typical of urban or agricultural runoff under "first flush" conditions after extended dry periods?

**RESPONSE:** Any degradation in water quality below standards established by the State Water Resources Control Board, Central Valley Regional Water Quality Control Board, and the United States Environmental Protection Agency would constitute a significant impact. No data can be found comparing water quality impacts between flooding and "first flush" conditions. However, it is obvious that runoff is likely to produce its most damaging effects during the first major rainfall after the dry season. At this time, the concentrations of pollutants are very high and the dilution capacity of the river is low. During flooding, the dilution capacity is high resulting in lower concentration of pollutants.

2210 Under EPA's new stormwater regulation, the Corps would be required to obtain a stormwater permit from the Regional Board for construction activities associated with the TSP. Discuss these permit requirements and identify the best management practices that likely would be used to reduce construction impacts on water quality to the maximum extent practicable.

**RESPONSE:** Activities associated with the construction of the Selected Plan are not subject to the new EPA stormwater regulations but are, however, subject to the State's Porter-Cologne Water Quality Act. Construction activities will not be started until the Regional Water Quality Control Board is consulted and waste discharge requirements are obtained from or waived by the Regional Board.

2210 The County of Sacramento recently filed suit against the State Water Resources Control Board. The allegations in the lawsuit contradict the discussion in this chapter. Please explain.

**RESPONSE:** Comment noted.

2211 On what basis were the wet areas discussed on page 6-17, paragraph 1, determined to be non-jurisdictional wetlands?

**RESPONSE:** The area was evaluated using the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (January 1989).

1987 What is the opportunity for accruing fish and wildlife benefits within the drainage system, such as benefitting the giant garter snake, waterfowl, and water-associated birds and mammals?

**RESPONSE:** The non-Federal sponsors (The Reclamation Board and SAFCA) are working with FWS and DFG to explore the avoidance, preservation, and enhancement opportunities available in the Natomas area. These efforts will continue in the future. The existing values will be preserved in the short term since the project will not have any direct impacts on areas away from the perimeter levees.

## **WATER QUALITY-NATOMAS**

2211 The report should discuss BMPs that will be used to ensure compliance with the water quality objectives in the Inland Surface Waters Plan during construction of drainage area improvements in Natomas.

**RESPONSE:** The mitigation discussion for the Natomas drainage and water quality impacts includes several measures including implementation of an Erosion and Sediment Control Plan during design and construction of Natomas levee improvements. A list of potential best management practices applicable to direct and indirect project impacts has also been added. Please refer to Chapter 6 of the EIS/EIR. Implementation of these measures would reduce potential construction-related water quality impacts to less than significant.

1953 Insufficient detail on water quality degradation and the need for more waste disposal.

**RESPONSE:** Additional information has been added to the discussion of water quality impacts for the Natomas area. See Chapter 6, Drainage and Water Quality, Impact subsection.

1987 Page 6-17 refers to development of both San Juan and Del Paso pumping stations with combined capacity of 5,900 cfs. Current North Natomas Drainage Management Plan calls for San Juan Station with significantly reduced pumping capacity. Peak storm runoff retained onsite with reduced releases to Sacramento River will aid in control of storm releases and provide increased water quality opportunities.

**RESPONSE:** Comment noted.

1987 Discussion of drainage should clarify whether referring to entire Natomas Basin or just the Natomas Community Plan area.

**RESPONSE:** The discussion of drainage in the Existing Conditions Section of Chapter 6, Drainage and Water Quality, refers to the entire Natomas Basin.

1844 The DEIS doesn't address water quality impacts to the Sacramento River system which may result from temporary or

permanent reoperation of Folsom, even though the Main Report states that impacts should occur. Table VI of the Main Report doesn't explain salmon losses. These salmon may include species protected under ESA.

**RESPONSE:** The temporary reoperation of Folsom Reservoir is not an approved project and, therefore, cannot be assumed to be in place while the American River Watershed Project is being constructed. Water quality impacts associated with temporary reoperation will be addressed along with mitigation strategies in the Folsom Reoperation EIS.

1986 Figure 6-1 purports to show stormwater from urbanized south Natomas. Actually it shows only the location of drainage canals and major roads in Natomas Basin, not drainage patterns or flow of drainage water.

**RESPONSE:** The text reference to Figure 6-1 states that the principle branches of the interior Natomas drainage system are shown on Figure 6-1.

2069 Full impact of constructing two or three more districts to collect and pump drain water in Water Quality is not adequately discussed. Also, insufficient discussion of increased runoff within the floodplain.

**RESPONSE:** The discussion of construction impacts due to implementation of levee improvements in the Natomas area has been expanded (see Impacts, Selected Plan, Natomas, in Chapter 6 of the EIS/EIR). The discussion of indirect drainage impacts in the Natomas area has been expanded to include a general description of improvements necessary to accommodate increased drainage and runoff.

1986 Chapter on drainage and water quality should reference environmental approvals for City of Sacramento drainage system for North Natomas Community Plan. City has prepared a series of environmental reports that should be referenced.

**RESPONSE:** This chapter has been revised to reflect and reference the most current adopted plans for this area.

## WATER QUALITY - UPPER AMERICAN

1569 Water quality effects associated with dredging must be discussed.

RESPONSE: Impacts resulting from inundation of dredger tailings have been analyzed by the State Regional Water Quality Control Board with the determination that no problems will result so long as these areas are not excavated. Additional information has been added to Chapter 6 (Drainage and Water Quality) of the EIS/EIR.

2166 Discussion of the natural occurrence of asbestos and pyrite/sulfuric acid should be included in this section. Mining tailings should be analyzed for gold extraction chemicals such as mercury or cyanide.

1846 The potential sulfuric acid formation and leaching of hazardous and toxic materials due to inundation of old mining sites and dredge spoils should be analyzed in more detail in the revised DEIS.

RESPONSE: There is no known significant deposit of acid-forming rocks such as pyrite in the upper American River. Any small amount that may have been exposed during the hydraulic mining of gold has since been mineralized and is not expected to generate acid leachate. According to the Central Valley Regional Water Quality Control Board, there are no large active mines in the project area or mine tailings deposits that are known to cause acid drainage problem.

There is no known deposit of asbestos in the upper American River. Asbestos is sometimes found in serpentine rock which is present in the project area. However, no crushing of serpentine rock is planned and, therefore, no release of asbestos from this rock will occur.

The mine tailings in the project area are not expected to contain cyanide since the chemical had not been used to extract gold in this area. Mercury is used in extracting gold and is known to be present in the sediments in the project area. This is discussed in more detail in the following response.

1806 Inundation with your dam could inundate undocumented mercury dump site behind the dam. Leaching from these old sites could mobilize methyl mercury which could permeate the downstream water supply. It could be damaging to the human and animal environment.

**RESPONSE:** It is very unlikely that a mercury dumpsite is present in the project area. Mercury is a valuable metal and miners who used the metal in extracting gold reused it. It is, however, documented that mine tailings and sediments along the rivers of the Sierra Foothills contain mercury as a result of its use by miners. The mercury attached to the sediments is in the inorganic form which is highly insoluble in water. Inundation of these sediments will cause erosion and transportation of mercury-laden sediments downstream. Erosion and transportation of mercury will not transform it into methyl mercury or other forms which would render it soluble in water or readily available to aquatic organisms. In summary, inundation may only transport the mercury to other places but will not alter its form so as to cause water quality problem or threaten aquatic lives.

2211 The proposed testing program on excavation and borrow sites should be included as a mitigation. In addition, the report should describe what steps will be taken to reduce adverse impacts on fish and wildlife if the pH in the river is reduced from the creation of sulfuric acid after excavation activities.

2054 Aggregate extraction will directly impact the quality of the river water.

1931 What effect will aggregate extraction from the river have on water quality?

1846 Aggregate sediment should be tested to determine if contaminants are present which could impact water quality through inundation or excavation.

1569 Water quality effects associated with the aggregate excavation (must be discussed).

1980 What effect will aggregate mining from the river have on water quality?

**RESPONSE:** As a result of the comments received during the public hearings and contained in the letters, alternative sources of aggregate have been identified and are evaluated in the Main Report and the EIS/EIR. The project plan has been revised to secure the required material from the existing quarry near Cool.

1931 What is the volume eroded during a worst-case event? What data substantiates this erosion not causing any effects to water quality? Where is the mitigation for this occurrence in your document?



**RESPONSE:** Please refer to Chapter 6, Drainage and Water Quality, of the EIS/EIR for a discussion of this topic.

1931 What construction activities should be limited to low-flow periods? What is a low-flow period? How often will monitoring take place during construction?

**RESPONSE:** Please refer to the Drainage and Water Quality Section (Chapter 6) of the EIS/EIR for a discussion of this topic.

2211 Are there any studies to support the conclusion on page 6-15 that the potential impacts of excessive nutrient loading will be minimal or nonexistent because of the temporary duration of the inundation?

**RESPONSE:** Because the dam only stores water temporarily and only during storm events, nutrients that may have been carried with the floodwater will be carried downstream as water is released from the dam thus preventing them from concentrating. In addition, the area above the dam is largely forest and runoff from forest area normally carries less nutrient compared to agriculture or urban areas.

2067 Project impacts due to realignment of Highway 49 on water quality are not evaluated.

**RESPONSE:** Most of the water quality impacts due to realignment of Highway 49 could occur during construction. The two most likely water quality problems encountered during construction are accidental spillage of construction materials and sedimentation in the river. The same mitigation measures to be implemented during dam and access routes construction are applicable to the Highway 49 realignment. These measures are discussed in the Drainage and Water Quality Section (Chapter 6) of the EIS/EIR. Operation impacts resulting from the realignment of Highway 49 are discussed in the same section.

1896 Describe more fully what we can expect in the way of impacts to water quality from dam construction.

**RESPONSE:** Please refer to Drainage and Water Quality Section (Chapter 6) of the draft EIS/EIR.

2197 There is an inconsistency regarding sediment movement during flood events. The conflict exists between the Project Description Section and the Water Quality Section. Please explain this inconsistency?

RESPONSE: There is no inconsistency. Both sections claim some sedimentation occurring behind the dam. However, sedimentation is expected to be insignificant; therefore, no dead pool space for sediment is planned in the dam design.

2259 The water quality discussion on page 17-22 fails to address the well-known siltation problems resulting from dams. This information should be added to that discussion.

RESPONSE: Siltation problems are not expected to occur. The Selected Plan is a peak-flow detention dam of concrete gravity design that would not permanently store water. Since two of the outlet sluices of the dam will be at streambed elevation, most of the sediment that would be transported to the damsite would be expected to pass through the outlet works. Any deposition of sediments would be similar to existing conditions, i.e., no dam.

2001 You need to tell readers that you have proposed something that will remove all federally mandated wetlands preservation and downstream water quality protections.

RESPONSE: Implementation of the Selected Plan will not affect application of appropriate Federal laws and regulations to activities proposed in the downstream area by others in the future.

## **WILDLIFE/VEGETATION - LOWER AMERICAN**

2109 Page DEIS 1-5, paragraph 3, last sentence - should be corrected to read "It would avoid adverse effects on aquatic resources resulting from incremental increases in high flows, e.g., 115,000 cfs to 130,000 cfs or greater and high water temperatures in the lower American River channel and/or increased flood control capacity in Folsom Reservoir."

1987 The opportunity for accruing fish and wildlife benefits within the drainage system, such as benefitting the giant garter snake, waterfowl, and water associated birds and mammals.

**RESPONSE: Please refer to revised Chapter 7, Fish, Vegetation, and Wildlife, and Chapter 8, Endangered Species.**

2017 It is destructive of environmental resources and goes against the increasing value people place on preservation of our natural heritage.

2188 The conclusory statements regarding adverse impacts from increasing flood storage space at Folsom and the lack of adverse impacts from inundation of the upper canyons is unsupported.

2107 Page 1-7, paragraph 2 - The statement that the 150-year and 2 of the 100-year alternatives could affect the designation of the American River as part of the State/Federal Wild and Scenic River System is misleading. The lower American is an existing component of both systems and you are required to inform the Secretary of the Interior and Congress if an undertaking would have a direct and adverse effect upon its values.

2203 The most important factor in maintaining the riparian corridor is the maintenance of reasonably similar summer flow patterns and winter season scouring events. It does not appear that shifts in streamflow regimes that the 650 TAF reoperation will have adverse impacts on the riparian corridor. It is a scour and sprout system, not seed sprout dependent.

2215 Please document all potential wildlife corridors in the study area and analyze the project impacts on these corridors.

2214 Vegetation discussion fails to identify potential affected vegetation other than wetlands. Please provide a full description of the plant communities potentially affected by the project.

- 1658 There is no discussion of loss of fly-away zone for migratory birds in Natomas. Report concedes loss of wetlands but not in sufficient depth or in relation to fly-away zone. California courts have ruled large-scale projects must consider cumulative impacts of the loss of wetlands used by migratory birds. Report is in clear violation and cannot be certified adequate.
- 1207 Improved wildlife habitat along the lower American and lower Arcade and Dry Creeks need to be considered as potentially very effective wildlife mitigation/restoration. Discussion of potential impacts in the upper American River is particularly inadequate. Plant species subject to inundation should be surveyed.
- 2217 It is inappropriate to defer discussion of impacts to fish, vegetation, and wildlife from levee work along the NEMDC until the final EIS.
- 2193 On page VI-6, the comparison is made between the size of the floodplain and the size of the detention area behind the dam. Is the Corps suggesting the floodplain is all or substantially wildlife habitat? The analysis adopted by the Corps on the vegetation impacts makes many insupportable assumptions.
- 2135 Flooding in the lower American River and Natomas floodplains is equated with flooding in the upper American River canyons. The consequences of flooding in a natural floodplain is not comparable to the consequences of flooding in a high canyon. An EIR is intended to consider impacts primarily to natural, physical environments.
- 2116 Page 8-43, paragraph 1 - It is likely that this mitigation site will not be adequate to compensate for all direct impacts. It will be difficult to optimize habitat values within the Yolo Bypass because of uncontrolled flood events that would periodically destroy vegetation and thereby reduce habitat values. In addition, monitoring for plant survival and habitat optimization will require many years, not 3 years.
- 2213 Describe the characteristics and the vegetation, wildlife, and fish associated with the wetlands in the Natomas Basin and lower and upper American River areas.
- 2216 It is inappropriate to defer consideration of the fish, vegetation and wildlife impacts of the 100-year levee and 100-year levee/storage alternatives to the final EIS.
- 2256 The postponement of environmental impacts analysis of portions of the TSP indicates the incompleteness of this analysis and cannot be deferred to the FEIS/EIR.

2258 The DEIS fails to provide an adequate cumulative impact analysis of the environmental impacts associated with Sacramento and American River flood control projects. Indirect impacts of a multipurpose dam is no less foreseeable than any other project identified in your analysis. This analysis does not contain a scintilla of discussion evaluating the collective environmental impacts associated with these projects. Wholly inadequate under CEQA and NEPA.

**RESPONSE:** Please refer to the revised Chapter 7, Fish, Vegetation, and Wildlife.

2211 On what basis were the wet areas, discussed on page 6-17 paragraph 1, determined to be nonjurisdictional wetlands?

**RESPONSE:** Wetlands were determined by a wetland survey of the Natomas area conducted by the COE Wetland Regulatory staff.

2193 The comparison of alternatives from an environmental perspective is severely flawed. Impact measurement categories should not be limited to fisheries and wildlife habitat.

**RESPONSE:** Comment noted.

1966 Is the FWS preparing a biological analysis of the levee alternatives for the final EIS? Some estimate must be made using the best techniques available, to reasonably estimate what will be lost.

**RESPONSE:** The estimates are contained in the revised Chapter 7, Fish, Vegetation, and Wildlife.

2068 Full impact of constructing two or three more districts to collect and pump drainwater now handled by R.D. 1000 is not adequately discussed. Also insufficient discussion of increased runoff within the floodplain. Insufficient alternatives to afford viable decision-making.

**RESPONSE:** Please refer to the revised Chapter 4, Land Use, and Chapter 18, Growth-Inducing Impacts, for additional discussion regarding impacts of development in the Natomas Basin.

2214 Page 8-15 states that the full extent of the potential impacts to jurisdictional wetlands will be provided at a later date in connection with the 404 process. Unless this information is prepared now and provided in the document, it is insufficient under both NEPA and CEQA.

**RESPONSE:** Please refer to Appendix G for the Section 404 Evaluation.

1987 The opportunity exists for accruing fish and wildlife benefits within the drainage system, such as benefiting the giant garter snake, waterfowl, and water associated birds and mammals.

**RESPONSE:** Please refer to revised Chapter 8, Endangered Species.

1991 Major weakness of Chapter 8 is a failure to discuss flooding impacts of no action. Floods may destroy more vegetation and wildlife than temporary pool behind the 400- or 200-year dams. Flooding of hazardous and toxic waste sites may also adversely affect fish and wildlife.

**RESPONSE:** Please refer to revised Chapter 7, Fish, Vegetation, and Wildlife, and revised Chapter 5, Hazardous and Toxic Waste.

2148 The Corps is being inconsistent in presenting environmental damage resulting from the TSP. Summary chapters such as Chapter 21 should have all the direct irreversible deaths identified in other parts of the report. Wildlife death is irreversible and should be reported as such.

2256 The postponement of environmental impacts analysis of portions of the TSP indicates the incompleteness of this analysis and cannot be deferred to the FEIS/EIR.

**RESPONSE:** Comments noted.

2135 Flooding equated in lower American River with upper American River and Natomas floodplains is equated with flooding in the upper American River canyons. The consequences of flooding in a natural floodplain is not comparable to the consequences of flooding in a high canyon. An EIR is intended to consider impacts primarily to natural, physical environments.

**RESPONSE:** Inundation of the floodplains of the lower American River and Natomas will have significant environmental consequences due to development that has taken place in these areas. Water quality impacts resulting from inundation of water treatment plants and the release of hazardous and toxic substances, and other consequences of flooding will result in impacts to natural environments. See revised Chapter 6, Drainage and Water Quality, and Chapter 5, Toxic and Hazardous Waste.

- 729 The lush river and forest descending to the water's edge provides cover for wildlife and nesting sites for birds.
- 859 The lower American River riparian habitat is precious and should be left alone.
- 2059 Any new flood control project should minimize impacts on the lower river to protect wetlands and riparian habitat and also include Folsom Reservoir water for protection of downstream fisheries.
- 1992 High floodflows with 100- and 150-alternatives could cause loss of burrows due to sedimentation which would adversely impact prey species. Higher flows, longer duration the worst the wildlife impact. Higher flows could also cause stranding of fish and fish loss.
- 1991 Long-term inundation of agricultural areas could lead to avian botulism and major waterfowl losses. If inundation persists into nesting season, significant reduction of bird productivity due to lack of nesting sites could occur. This would especially impact quail and pheasants. Similar conditions to Buena Vista and Tulare Lake areas could occur.
- 1992 Passage of high floodflows down the lower American with 100- and 150-year alternatives could cause significant loss of wildlife along the water course.

**RESPONSE:** Comments noted.

- 2251 Wildlife values in the lower American River would decline substantially with the TSP and 200-year alternative.

**RESPONSE:** The Selected Plan (200-year plan) does not contain any plan features in the lower American River area and, therefore, wildlife will not be impacted here. Flow impacts that now occur will continue and in larger flood events will be extended for a few days.

1990 Need more focus on potential adverse impacts of the floodplain. Even temporary flooding could have immediate and long-term impacts on diversity of wildlife due to drowning. Forage for birds and small mammals could be inundated and unavailable. Prey species such as small rodents, invertebrates, etc. lost from food chain. Predator species will find food foraging extremely difficult.

**RESPONSE:** Text has been added to Chapter 7, Fish, Vegetation, and Wildlife, to reflect this comment.

1957 The comparison of fish, vegetation, and wildlife impacts of 100-year FEMA alternatives summarized in Table 1-2 is flawed because it doesn't identify potentially less damaging 100-year FEMA alternatives in addition to the "storage", "levee", and "levee/storage" alternatives in the DEIS.

**RESPONSE:** Chapters 4, 5, and 6 (in the Main Report); Plan Formulation Process and Flood Control Measures, Alternative Plans Considered, and Plan Selection Process respectively, discuss the process used to determine the final array of alternatives considered for analysis.

1207 The EIS/EIR does not cover the environmental impacts of riprapping and otherwise building up/reinforcing some 100 miles or more of levees and banks along the Sacramento River below the confluence with the American River as well as all the way down through the Delta.

**RESPONSE:** Alternatives which incorporate higher releases in the Lower American River would increase water stages in the Sacramento River and Yolo Bypass. It is anticipated that these river stages and impacts associated with these increased stages. are minimal by the time they reach the Delta levees.

2244 Provide studies presenting quantitative data demonstrating the likely consumption of resources following a major flood. Any estimate for potential energy consumption for activities following a major flood must be offset by the likelihood that such a flood would occur during the life of the project.

**RESPONSE:** Please refer to Appendix B, Plan Formulation, for a discussion of the no-action alternative.



## WILDLIFE/VEGETATION - NATOMAS

- 240 I support the acquisition of the Natomas wetland area to protect already endangered species as well as stabilizing down river fisheries.
- 689 I support the acquisition of the Natomas wetlands.
- 1106 The mitigation mentioned for Natomas is inadequate with the growth-inducing aspects of this flood proposal.
- 2251 High quality wildlife and endangered species habitat is too difficult and costly to replace. Restricting future building to less floodprone and less desirable wildlife areas than north Natomas makes more economic and environmental sense.
- 13 Ultimate buildout of more than 29,000 acres in Natomas and more in Meadowview and Pocket is considerable loss of wildlife habitat. Loss of 7,000 acres of rice land in Natomas could reduce food for wintering waterfowl by nearly 2.5 million. Similar loss to wintering waterfowl from 6,000 acres of other grains grown in Natomas, 7,000 acres of new crops and over 2,400 acres of grassland/pasture that support rodents for Swainson's hawk would be lost to full buildout of floodplain.
- 2108 Significant wildlife resources were identified including seasonable flooding farmland, agricultural waterways and wetlands used for breeding and foraging habitat for thousands of migratory waterfowl and shorebirds. Additionally, habitat was also identified for important resident fish species and salmon.
- 785 Development in Natomas wetlands is terribly detrimental to riparian habitat and fisheries.
- 446 The development of the Sacramento floodplain will cause the sacrifice of vegetation and wildlife habitat.
- 1928 FWS is obviously concerned about indirect impacts to Natomas wildlife and Pacific Flyway. Shouldn't the Corps address this issue instead of disclaiming any responsibility for growth-induced impacts they know will occur?

**RESPONSE:** The implementation of the American River Watershed Investigation would allow the various local governments to pursue development pursuant to their approved City and County General Plans. Discussion of the impacts and mitigation associated with these local plans are discussed in the Fish, Vegetation, and Wildlife Chapter 7 under the Indirect Impact Section.

439 Should development of any kind result from your project, full riparian mitigation must be a condition. It must include natural riparian ecosystem, range enhancement and water quality improvements for fisheries.

663 I am in favor of full flood control mitigation as long as it will not disturb the Natomas wetlands. Some great creatures live there.

46 Any action taken on the American River must include mitigation measures that cover wetlands, riparian areas and fisheries.

**RESPONSE:** Proposed mitigation for project induced impacts in the Natomas area is discussed in the Fish, Vegetation, and Wildlife Chapter, Natomas Mitigation Section. Mitigation proposals include wetland, riparian and upland habitats.

2255 The postponement of environmental impacts analysis of portions of the TSP indicates the incompleteness of this analysis and cannot be deferred to the EIS/EIR.

**RESPONSE:** The text of the EIS/EIR has been revised to reflect this comment. Additional information pertaining to ongoing studies can be found in the Fish, Vegetation, and Wildlife Chapter 7.

1988 Major omission is failure to consider the General Plan Amendments for south Sutter and Sacramento Counties and their impacts on urbanization and related impacts on vegetation and wildlife.

**RESPONSE:** Reasonably foreseeable amendments to local plans pertinent to the project, such as the South Sutter General Plan Amendment, are discussed in the Growth-Inducing Impacts Chapter of the DEIS/EIR and in the Land Use Chapter and appendix.

97 Figure 8-2 on page 8-14 shows an area of jurisdictional wetland that has since been determined to be smaller and should be amended in the report.

**RESPONSE:** The text of the EIS/EIR has been changed to reflect this comment.

1907 After a flood, standing water between 5 to 25 feet would be left and kill all ground-living animals.

**RESPONSE:** After the project is in place, these flood depths would not be realized. For a complete discussion of residual flooding in the Natomas area, see Appendix C, Economics.

2068 Ultimate loss of floodplain habitat along the Sacramento River, wetlands, farmlands and canals that enable farming operation must be addressed. This is key habitat for resident migratory and threatened wildlife species in Natomas.

**RESPONSE:** Text has been added to Chapter 7, Fish, Vegetation, and Wildlife of the EIS/EIR and Chapter 8, Endangered Species, to reflect this comment.

2167 Discuss the value of the existent rice land and drainage and irrigation canal system to resident ducks and other waterfowl.

**RESPONSE:** Text has been added to Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR to reflect this comment.

## WILDLIFE/VEGETATION - UPPER AMERICAN RIVER

- 1698 There will be too much of a loss of wildlife due to your project.
- 495 This dam will destroy life forms and make them inaccessible to observation and enjoyment by humans.
- 2003 It is a shame to lose so much wildlife and beautiful scenery.
- 848 I am concerned that your project will destroy wildlife habitat.
- 2030 The project will do too much environmental damage.
- 2051 The plan will harm wildlife.
- 610 This project would be very abusive for this environment.
- 1218 Leave things alone before our environment is ruined.
- 1957 The comparisons of fish, vegetation and wildlife impacts of 100-year FEMA alternatives summarized in Table 1-2 is flawed because it doesn't identify potentially less damaging alternatives in addition to the "storage", "levee", and "levee/storage" alternatives in the DEIS.
- 532 Protect the ecosystem in the river.
- 1918 You can't take a riparian area that's been destroyed by flooding and take it and say: here is some nice farmlands over here that we are going to give you.
- 684 A 500-foot dam would severely damage the riparian vegetation and the indigenous wildlife.
- 343 The dam would be very destructive to the riparian habitat.
- 2108 The abundance and diversity of canyon wildlife is due largely to the continuous, dense, undisturbed riparian corridors. Degradation of the canyon habitat would greatly diminish and probably eliminate wildlife populations.
- 488 The Auburn Dam would destroy the natural environment.
- 1006 I am concerned about the fate of nature, wildlife, ecology and the natural preservation of the American River canyons. I hope they will remain intact for the next generation. I am afraid the Auburn Dam will jeopardize that possibility.

1048 If the proposed Auburn Dam were to be built, the existing vegetation and wildlife would be seriously endangered.

2177 Naturally occurring, virgin riparian habitat cannot be relocated or artificially maintained in a National Park. The American River canyon serves as an important link in the lifecycle of the local deer population. Thousands of native creatures would not survive being forced upward in elevation by rising waters of a "dammed" canyon.

**RESPONSE:** The upper American River will sustain some slight unavoidable impacts to the environment. The frequency and duration of flooding as a result of a flood control dam are periodic and the environmental impacts would be significant and unavoidable, however, mitigation is proposed to off set this impacts.. These impacts and the mitigation proposed are discussed in Chapters 7 and 22 of the EIS/EIR and in much detail in Appendix Q, Inundation Impacts.

5 Dam should be blocked to avoid ecological consequences of flooding an extremely beautiful and rare river system.

2214 The report states that there would likely be little impact to wetlands in the upper American River. What is the basis for that conclusion? Has the Corps mapped the wetlands in the portion of the upper American River area subject to inundation? Those wetlands should be mapped to allow the wetlands impacts from the project to be quantified.

2188 The conclusory statements regarding adverse impacts from increasing flood storage space at Folsom and the lack of adverse impacts from inundation of the upper American River canyons is unsupported.

2020 The dam would destroy the environmental and recreational values of the canyon.

**RESPONSE:** Please refer to revised Chapter 7, Fish, Vegetation, and Wildlife, for a detailed discussion of these topics.

2022 EIS is lacking in explaining the impacts of temporary storage within the environment of the proposed pool.

2038 Fluctuation will lead to destruction of the ecosystem. I don't want the same thing to happen that happened to the Stanislaus.

- 2218 Contrary to the statement that increased soil moisture could increase average net photosynthesis, based on Corps hydrology, there should be no impoundment pool inundation without a heavy rainfall event which would bring soils to conditions between field capacity and saturation. There is no flood credit here.
- 2218 What will be done to protect the ten types of Chaparral species that would be affected? Why isn't there any data on withstanding floods on six of the ten species? What will be done to compensate for the wildlife that live in this type of vegetation?
- 2068 Doesn't fully analyze impacts to vegetation and wildlife due to periodic inundation of 6,000 acres of habitat. It leads to an erroneous conclusion that impacts are minimal.
- 63 Even short flooding will have disastrous effects on wildlife in the area and destroy degrade recreation access roads and trails.
- 1377 The dam will destroy the environment, the historical features and the recreation.
- 241 Periodic inundation would extend 20 miles upstream degrading vegetation, killing trees and causing landslides.
- 1982 The ecosystem upstream could be severely damaged by temporary inundation.
- 2221 The conclusion that there was no evidence of vegetation die-back associated with the '86 event is a nonconclusion. Was any age structure assessments made across the inundation/noninundation boundary? What potential impacts are associated with inundation other than die-back and how were they evaluated?
- 2225 Field observations do not reveal any adverse impacts on regeneration but these statements of observation are not accompanied by any data that indicates where these observations occurred and what features were observed. In no way are the observations explained or substantiated and cannot be reviewed or evaluated. The assertions cannot be accepted as either complete or accurate.
- 2157 The construction and operation of this dam would cause many significant adverse environmental impacts. Fluctuating flood water levels behind the dam would increase erosion and landslides, destroy or degrade vegetative communities, and devastate important fish and wildlife habitat.

**RESPONSE:** Please refer to revised Appendix Q, Inundation Study, for a discussion of impacts related to temporary storage of floodwaters behind the dam.

2012 The estimates of onset of shoot growth in S. Cal Chaparral shrubs is an inadequate basis on which to draw the conclusion that plants in the American River canyon are likely to be inundated when they are physiologically inactive. Considering average temperature is well above biological zero (41 degrees F), the assertion that there will be reduced impacts due to plant dormancy is probably quite inaccurate.

**RESPONSE:** This comment is the opinion of the commentator and is a subject of disagreement among experts. Please refer to the revised Inundation Study, Appendix Q, for a detailed discussion of this topic.

2217 The analysis of fish and wildlife impacts from construction of the 200- and 400-year structure at Auburn is completely inadequate. How is it that mining 15 miles of the Middle Fork would have no impact on fisheries, wildlife and little impact on vegetation?

**RESPONSE:** Please refer to report of aggregate mining impacts in Appendix M of the EIS/EIR for discussion of impacts related to aggregate mining. The selected aggregate source for the Selected Plan is the Old Cool Quarry.

2069 Table V-16 on page V-40 of the Feasibility Report and all discussions of impacts and mitigation measures are not accurate.

**RESPONSE:** Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR has been revised to more thoroughly discuss this topic.

102 This project is too costly to the natural beauty of California.

309 Further loss of natural wildlife sanctuaries in California could result in serious environmental consequences.

468 I oppose this action and want to see the river continue to flow free.

503 Loss of the American River habitat is not worth limited flood control purposes of the dam.

626 Please help to preserve the rivers, parks, and wildlife.

615 Please leave the American River in its natural, free-flowing  
614 state.

80 Preserve the few wild rivers that remain.

84 The building of Auburn Dam would stop the free flow of the American River and interrupt the ecosystem of California.

306 There is not enough wildlife anymore to make any difference.

489 This dam would have too great an impact upon the region's ecosystem.

427 We must now manage the American River to save the natural resources it supports.

428 We should continue to preserve the naturalness of the area.

94 Wildlife habitat, free-flowing rivers, and healthy fisheries are far more important than any benefit that could possibly be derived from this dam.

623 The river is a priceless natural habitat which should be preserved for all the generations to come.

487 The upper American River canyons are a last oasis for wildlife habitat.

409 Protect the wildlife and keep the American River free-flowing.

427 A real Auburn Dam would also protect downriver resources.

678 A small dam would eliminate damage to the vegetation and habitat. I would like to see the canyon remain the same.

822 A dam will affect the wildlife. It is not our place to do that to them.

1539 I feel the money could be spent on something meaningful that doesn't involve the destruction of the environment.

1904 In El Dorado County, there is a mapping and inventory process to preserve wetlands and streams because the residents have said they strongly want to preserve creeks and wetlands.

1360 Please don't destroy the wildlife like you did on the Stanislaus River.



- 1372 Preserving natural land is important for thousands of animals such as fish, birds, and reptiles.
- 1086 The canyons are a place that should be preserved and protected. We do enough damage with litter and chemicals, we don't need to mess with what's left.
- 953 The upper American River is the last oasis of wildlife habitat. Don't destroy it.
- 1411 This dam would cause pollution, people would drop litter and cause disruption to the animals.
- 1374 This is a terrible way to destroy the environment.
- 854 We have precious few rivers in American that we have left alone. I think we should leave the American alone to maintain its ecosystem for the trees, birds and people.
- 1217 You should protect all species, not just people.
- 1335 A NRA would offer recreational activities without threatening endangered species.
- 1012 I support alternatives that do not endanger endangered species.
- 1274 Free rivers represent valuable natural ecosystems which have important significance beyond their use as water resources or flood control.
- 831 I have seen fish and waterfowl diminish by 90 percent in the Delta, rivers and bays during my 62 years of life.
- 1382 Man has destroyed enough pristine nature as it is. I don't think we are setting a good example for the next generation.
- 1903 Numerous dams have been built in the State. We only have 5 percent of our wildlife left and we should protect it.
- 1008 Please let the river keep running. Look at all the nature and animals that need homes.
- 943 The cost of losing the natural resources of the American River is too high.
- 1515 There are less expensive and less destructive methods that will not result in the loss of this natural area.
- 1332 These areas are the last oasis for many wildlife forms.
- 1268 This dam is a crime against nature.

- 878 We are America's future and it pains us to see nature destroyed when it should be preserved.
- 1913 We had no hand in its creation (the river) and we barely have an understanding of the habitat, yet we feel qualified in its destruction.
- 1633 We should preserve wild areas that still remain in this State. To lose it to another dam would be a crime against this generation and future generations.
- 1702 We should preserve wildlife and recreational areas.
- 1907 You need to look at the environmental impact for not only upstream, if a dam is built, but also downstream if one isn't.
- 1118 You only hired an expert when it was in your interest to do so and then you hired one that would support the conclusion you had already arrived at.
- 867 I support full flood control project mitigation.
- 1111 I wonder if the Corps will deliver on their mitigation promises given their history at New Melones and Warm Springs and the tight budget of the federal government.
- 987 I think that this is a terrible waste of the wilderness lands that are not only beautify and educational for humans to experience, but are fairly the lands that belong to wildlife.
- 1366 Money can be better spent instead of losing animal habitat.
- 1389 The land should stay natural because it has been restored for three decades.
- 1501 The negative impact on the environment must not be initiated.
- 1240 The wilderness in the area must be preserved.
- 1695 We simply can't have that river destroyed. Already 64 percent of native species of fish are threatened. Please wake up before all is lost.
- 1826 FWS mitigation measures should be followed.
- 1575 Your mitigation plans are unacceptable.
- 914 Auburn Dam would be an environmental disaster.
- 1613 It is our responsibility to preserve the habitat of our fellow creatures and plants.

- 1467 As with New Melones, this dam would destroy an irreplaceable piece of California's wilderness, which could not be mitigated in any way even if the Corps were to attempt such mitigation, which they will not attempt.
- 1921 Corps said that periodic inundation will have little or no effect on vegetation and wildlife. We believe that the FWS' estimates of damage are more accurate than the Corps'. We believe the project would have devastating effects.
- 1174 The FWS states that more than 3,800 acres of habitat will be destroyed due to construction and operation of the 400-year dam and 3,000 acres from 200-year dam. Wildlife losses will occur and wildlife diversity will decline.
- 875 I think that it would be a shame to build a dam. This area is home to so much wildlife not to mention a great place to enjoy.
- 1897 Fish and wildlife study of the upper canyons cannot be denied that they are one of the most diverse, valuable, and vanishing habitats in California.
- 1893 The canyons are rich in wildlife.
- 971 The canyons are the last oasis of wildlife habitat.  
972  
970
- 1126 I personally don't like to see the destruction of recreational areas. The toll on wildlife and the environment alone is not worth any of this.
- 12 Doesn't fully analyze impact of vegetation and wildlife due to periodic inundation of 6,000 acres of habitat. Leads to erroneous conclusion that impacts are marginal.
- 1990 Vegetative species such as willows, forbes, and grasses could become established in inundation zones. This would provide greater vegetative diversity and "edge" habitat beneficial to wildlife. It should also be noted that chaparral species have the tendency to become decadent unless "pruned" on a 4-5 year cycle by fire, overgrazing, etc. Inundation of Chaparral could be beneficial if inundation occurs on a cyclical basis.
- 1991 The impacts of a dry dam on vegetation can be found at Prado Dam in Southern California. Land behind the dam is periodically inundated by the Santa Ana River. The Prado Basin has become an important wildlife habitat area with dense tree canopy and understory of shrubs, grasses/forbes, supporting many wildlife species. Auburn Dam may not provide the same high value but the creation of edge habitat will

substantially benefit upland and game birds and mammals, deer, passerine species, furbearers and nongame species.

- 1990 Similar increases in habitat values as found at Prado Dam have also been noted in portions of the Warm Springs Reservoir in Sonoma.
- 2060 The natural values of the canyons are superb and would be quite completely destroyed by inundation. The North Fork canyon in particular has absolutely superb natural and scenic values which would rank it of equal importance to many units already in the National Park System.
- 2221 Duration of inundation relative to a bankfull discharge elevation may be a more useful approach to estimating "average" depth of inundation of vegetation. This should result in estimated depths on the high side as most vegetation should have basal elevation greater than the bankfull water surface elevation (see letter page 51, last paragraph).
- 2220 Reference to 3 to 25 days of inundation annually on page 17 applies to flows of 30,000 cfs and are not flows mostly associated with inundation impacts. The inundation period used exaggerates the site condition.
- 2221 Pages 23-31 of McClelland report - the degree of uncertainty regarding losses from physiological causes extends beyond the issues of incomplete data and individual variability. All of the literature and "anecdotal evidence" should be applied to riverine conditions, low magnitude inundation, and soil saturation events.

**RESPONSE:** The Upper American River will sustain some unavoidable impacts to the environment. The frequency and duration of flooding as a result of a flood control dam causes significant environmental impacts would be comparatively minor. These impacts and the mitigation proposed are discussed in Chapters 7 and 22 of the EIS/EIR and in much detail in Appendix Q, Inundation Impacts.

- 2157 The construction and operation of this dam would cause many significant adverse environmental impacts. Fluctuating water levels behind dam would increase erosion and landslides, destroy or degrade vegetative communities, and devastate important fish and wildlife habitat.
- 2119 Page DEIS 21-4, paragraph 3 - the FWS disagrees with this assessment. Based on FWS's studies, there will be significant erosion, soil loss and slope failure caused by inundation events.

**RESPONSE:** Please refer to the revised project description. A revised slope stability analysis has been conducted by DWR and is contained in Appendix M. These data, which are incorporated into the revised analysis, do not indicate that the entire soil mantle of the canyon will slide as a result of inundation. Please refer to the Inundation Study in Appendix Q.

2185 The environmental analysis attempts to minimize the impacts of the Auburn Dam alternatives on the upstream canyons. FWS has identified major upstream impacts in its DCAR, requiring substantially greater mitigation than proposed by the Corps. Of particular concern is the DEIS's treatment of habitat that the FWS concluded will be lost as a result of upstream impoundments.

**RESPONSE:** The FWS draft Coordination Act Report has been revised to reflect the new project design. The inundation reports have been revised to include new slope stability analyses (see Appendix Q).

2217 The analysis of fish and wildlife impacts from construction of the 200- and 400-year structure at Auburn is completely inadequate. How is it that mining 15 miles of the Middle Fork would have no impact on fisheries, wildlife and little impact on vegetation?

**RESPONSE:** The aggregate source for the Selected Plan is the Old Cool Quarry. Selection of this source eliminates impacts on the Middle Fork gravel bars. Please refer to the revised project description and to the aggregate study in Appendix M.

2035 There will be significant environmental damage up-canyon of the dam. Flooding would cause irreparable damage to riparian habitat and dependent species.

**RESPONSE:** Please refer to the revised project description in the EIS/EIR and the Inundation Report in Appendix Q.

1854 Appendix G, page G-13 - DEIS should specify the type of habitats which will be lost or altered due to periodic inundation.

**RESPONSE:** Please see Chapter 7, Table 7-14 for specific information on HEP cover types in the upper American River canyon.

2216 What is the Corps doing about the temporary inundation of wildlife habitat that would result in the loss and displacement of species in the 700-acre area? What will be done to mitigate losses of small rodents, reptiles and other species?

**RESPONSE: See Final Report Chapter 7 in inundation impacts are discussed and mitigation proposed.**

1828 Extensive disagreement between FWS and the Corps exists over how much environmental damage to expect. Therefore, mitigation costs could skyrocket.

2067 There is also a wide discrepancy among information regarding  
2066 vegetation and wildlife from the FWS report.

2067 Conclusion regarding inundation impacts to vegetation is erroneous and inconsistent with FWS report. Gradual degradation with each inundation masks the long-term habitat loss.

**RESPONSE: There is little disagreement between Fish and Wildlife Service and the Corps on impact acreage. Chapter 7 of the EIS/EIR details the impact analysis. In fact, the Corps identifies slightly more impact acreage. There is some disagreement over the amount of mitigation lands.**

11 Wildlife impacts in DEIS stating most species will move to adjacent areas is contrary to accepted biological principles. Fail to evaluate inter- and intraspecific competition. Also, long-term degradation of adjacent habitats due to periodic immigration of reservoir population into adjacent habitat.

104 Common inaccurate assumption that as habitat is lost wildlife will move to adjacent areas.

1934 The negative effects on higher food chain species because of losses to lower food chain species due to inundation needed to be evaluated.

2116 Displaced wildlife are typically unable to survive in new territories because the territories are already occupied. Many species will be drowned or will be harassed or killed by the animals whose territories they have invaded.

2068 Wildlife impacts (page 8-19) in DEIS stated "most species will move to adjacent areas" is contrary to accepted biological principles. It fails to evaluate inter- and intraspecific

competition. Also long-term degradation of adjacent habitats due to periodic immigration of reservoir wildlife populations into adjacent habitat.

**RESPONSE:** The commentor states that the comment in the DEIS that "Most species will move to adjacent area" is contrary to accepted biological principals and fails to evaluate both inter- and intraspecific competition and ultimate long-term degradation of adjacent habitats due to periodic immigration of reservoir wildlife populations into adjacent habitats. Contrary to the comment of CDFG, several studies have documented temporary "high density refuge populations" composed of wildlife displaced by temporary inundation and the subsequent reoccupation of home ranges (Dusek 1989; Knopf and Sedgwick 1987; Brown and Arnold 1985; Heideman et al. 1983; Yeager and Anderson 1964; McCarley 1959; and Stickel 1948).

2215 FWS recommends planting and watering of riparian and upland plantings for the minimum of six years and monitoring of at least 20 years beyond the initial establishment period. Why does the Corps believe a three-year establishment period is enough?

**RESPONSE:** Text has been added to the Fish, Vegetation and Wildlife chapter to reflect these comments. The establishment and monitoring times associated with mitigation are closely tied with the time the project is in the construction budget cycle (approx. 5 to 7 years) as funding after this time cannot be guaranteed. Therefore, monitoring will likely extend from 5 to 7 years.

1989 On page 8-32, Table 8-10 provides information on shoot growth of Chaparral species. Should note that a later main growth flush could be expected farther north from your example of the San Gabriel Mts. In most cases temporary inundation would occur prior to main growth flush for Chaparral species.

**RESPONSE:** The commentor is directed to Section 4.2 for a discussion of the relationship between photosynthetic activity and a shoot elongation. In addition, the impact of flooding on chaparral species which may be actively growing during winter species was fully integrated into the analysis. As noted with specific reference to assumption 5, to maintain the conservative nature of the analysis, the study assumed that the chaparral components within each elevation band would be lost if flooded beyond 7 days irrespective of season. See revised Inundation Study, Appendix Q.

2219 The evaluation of impacts ignores the all-winter growth character of evergreen Chaparral, live oak and coniferous plant communities.

**RESPONSE:** The study did not discount winter growth character of evergreen Chaparral, live oak, and coniferous plant communities. With regard to chaparral species, see comment above. With respect to live oaks and coniferous species, the commentor is directed to Table 2 which indicates that live oaks and conifer species tolerate between 30 to 90 days of inundation during the growing season based on studies published by the U. S. Fish and Wildlife Service. These tolerance levels are considerably less than would occur at the flood control dam. Consequently, it was concluded that mortality would be minimal. This conclusion was buttressed by field observations described in Section 5.0. See revised Inundation Study, Appendix Q.

2219 People trained in geology and vegetation observed impacts in the area of Murderer's Bar after the '86 event. It consisted of small-scale landslides and high percentage tree loss. It was evident repeated inundation would lead to general downslope movement of the soil mantle. We question your reliance on a park ranger of unclear training as your source on this matter.

**RESPONSE:** It is the belief of the authors that the observations of professional park rangers who have observed the area for a number of years can provide valuable insight to the process affecting the area. While scientific studies were not conducted after the 1987 flood, that does not discount the observations and impressions of the park employees. Further, subsequent field observations found no evidence of gross loss of vegetation. Please see the Geotechnical Appendix (M) which contains an evaluation of soils and soil stability for the proposed flood control dam at Auburn.

2190 The statement on page V-13 that damage to the canyon is insignificant is astonishing, unsupported, and directly contrary to the FWS analysis. To classify the area as common habitat ignores the area's value. Riparian zones and canyons are rare at the elevation with either the TSP or 200-year alternative. There is not sound management basis for proposals recommended by FWS.

**RESPONSE:** Please refer to the revised Chapter 7, Fish, Vegetation, and Wildlife. More information regarding habitats in the upper canyon is also provided in the Aggregate Study in Appendix M.



2217 It is inappropriate to defer the discussion of the fish and wildlife impacts of the Highway 49 relocation until the final EIS.

2114 Further discussion is needed to discuss the Service's method of estimating inundated lands.

**RESPONSE:** Please refer to the revised Chapter 7, Fish, Vegetation, and Wildlife.

2114 Page 8-16, paragraph 2 - Further discussion and correction is needed here. FWS calculation of existing habitat was based on land surface area that supports wildlife, not reservoir surface area. Average slopes varied 30-60 percent accounting for more land surface area. FWS used the same method to calculate mitigation area to ensure consistency.

**RESPONSE:** Please refer to the revised Inundation Study by the FWS in Appendix Q. The FWS has recognized inconsistencies between methods used for the draft documents to acreages of impacts and mitigation with standard engineering measurement practices. FWS calculations of acreages in the final reports have been modified to be consistent with accepted measurement practices.

2255 The draft EIR/EIS report's discussion of possible changes in the plant and animal communities at the upper American River project site is not adequate.

2255 Plant species tolerant of inundation may undergo significant change and therefore, may support a different animal community.

**RESPONSE:** An updated Inundation Study is contained in Appendix Q and a description of impacts to fish, vegetation, and wildlife due to aggregate activities is contained in Appendix M.

133 The ecosystem upstream of the dam could be severely damaged by temporary inundation.

1990 Questions, conclusions and substantiation for FWS assertion that all vegetation within American River canyon lost behind dam when filled to its highest elevation with either TSP or 200-year alternative. No sound management basis for proposal recommended by FWS.

**RESPONSE: Comment noted.**

1967 USF&WS and Planning and Conservation League's comments to the Analysis of Potential Vegetation Mortality presented by the Corps in Appendix Q suggests that the Corps' assumption of little disruption of the canyon ecosystems is in error.

**RESPONSE: Please refer to revised Inundation Study, Appendix Q.**

1991 Major weakness of Chapter 8 is failure to discuss flooding impacts of no action. Floods may destroy more vegetation and wildlife than temporary pool behind the 400- or 200-year dams. Flooding of hazardous and toxic waste sites may also adversely affect fish and wildlife.

**RESPONSE: Please refer to revised Chapter 6, Drainage and Water Quality, and Chapter 5, Toxic and Hazardous Waste and Chapter 7 Fish, Vegetation and Wildlife.**

1952 Need larger discussion of impacts.

555 Protect upstream vegetative cover to prevent excessive run-off in wet years. Stop clear cutting timber.

**RESPONSE: Comments noted.**

684 A 500-foot dam would severely damage the riparian vegetation and the indigenous wildlife.

343 The dam would be very destructive to the riparian habitat.

439 Cumulative loss of riparian lands is intolerable and irreplaceable if periodic or long-term inundation occurs.

1104 Five percent of the riparian habitat is still left in the State and this dam would damage a large section of that.

1688 Loss of verdant riparian and canyon habitat would result.

1843 The proposed dam may obstruct wildlife movements within the riparian corridor and should be addressed in the revised DEIS.

1901 You fail to recognize that even temporary inundation will seriously erode an irreplaceable and delicate riparian habitat.

2038 Fluctuation will lead to destruction of the ecosystem. I don't want the same thing to happen that happened to the Stanislaus.

2038 Not only will this free-flowing river be lost to humans, but animals will lose their homes and the canyon vegetation will be destroyed.

RESPONSE: Please refer to Chapter 7, Fish, Vegetation, and Wildlife, in the EIS/EIR. It is expected that there would be no net loss in habitat value as a result of the project. There is a high likelihood that this habitat type will increase due to the operation of the detention dam.

1889 Temporary inundation will cause small animals, reptiles, and others that cannot readily move to another habitat and therefore kill some animals.

2255 Animal species which depend on riparian woodlands for cover, food, breeding or rearing young should be identified and population impacts assessed in the draft.

2244 Please provide a more descriptive statement for each of the impacts identified and please provide separate lists of significant adverse impact for each of the alternatives.

RESPONSE: Concur in part. Please refer to expanded description of impacts to wildlife in Chapter 7 of the EIS/EIR.

1897 The report can claim there are not wetlands simply by choosing the federal definition and not the State's.

RESPONSE: Wetlands in the project are discussed in the Fish, Vegetation, and Wildlife Chapter 7. The federal definition of wetlands is used for Section 404 wetland regulatory purposes. The FWS wetland classification is also discussed. Both of these classifications were used in the EIS/EIR. The federal definition was used for regulatory purposes and the FWS used their definition in describing cover types for the HEP analysis. Impacts to both of these wetland areas are discussed in the above-mentioned chapter. The State of California does not have a separate definition of wetlands for regulatory purposes.

2185 There is no discussion of the long-term inundation that could result from closure of the proposed gates on the upstream detention dam.

429 The gates insure that the upstream canyons will be flooded eventually.

**RESPONSE:** Operation of the proposed gates is discussed in the Selected Plan Chapter of the Main Report. Inundation from closure of the gates is anticipated to occur extremely infrequently only during emergency situations at the dam as in the downstream flood control system. Floodflows stored for this purpose would then be evacuated as soon as the emergency eases and no long-term inundation would occur during the life of the project. All concerned agencies would be notified when such emergency operations are decided upon. No added impacts are expected of a magnitude requiring added mitigations.

2185 There is no discussion of the environmental impacts associated with the extensive mining activities associated with dam construction.

**RESPONSE:** Please refer to the Aggregate Study contained in Appendix M.

63 Even short flooding of the reservoir area would have a disastrous effect on wildlife in the area and destroy or degrade recreational access roads and trails.

2218 FWS determined the inundation zone to be approximately 6,324 acres. What percentage of these acres has been subjected to the destruction your report described? Is there any evidence that the areas disturbed by the mining activities have recovered quite well?

1990 Impacts of a dry dam on vegetation found at Prado Dam in S. CA. Santa Ana River periodically inundates land behind dam. It has become important habitat with dense tree canopy, understory of shrubs, grasses and forbes. Auburn Dam may not provide as high a value, but edge will substantially benefit upland and game birds, mammals, deer, furbearers, and nongame species.

2218 The apparent inconsistency between statements on pages 34 and 35 of the McClelland report on vegetation mortality characterizes the entire evaluation. The author has adopted assumptions, interpreted study results in such a way as to lead to the conclusion that impacts would be few. No fewer

than 10 statements are contained that assert inundation is beneficial to vegetation.

2264 There is no data on relative or absolute abundance, riparian-upland gradient, or frequency of inundation derived from riparian-upland gradients presented in Appendix Q. Conclusions given this poorly assembled material are impossible.

2244 The DEIS states that the TSP would result in no greater damage to the environment than any other action alternative evaluated. This statement is conclusory and does not appear to be supported by the analyses in the report. Please summarize the factual basis for any finding that the TSP is the least environmentally damaging alternative.

2226 The conclusion that impacts are likely to be insignificant appears to be totally contradicted by the evaluation offered in the report. Regeneration is not just seedling germination but the survival of the seedlings to maintain a viable plant community over a protracted period of time.

2221 Without the surface elevation and depth of inundation information, even an accurate stage discharge relationship for the river could not be used to derive inundation duration for portions of the overflow area. Therefore, it is not appropriate to use any specific elevation discharge relationships from the Fair Oaks gauge to the Sunrise site.

**RESPONSE:** Please refer to the revised Inundation Study in Appendix Q.

2157 The mining of construction materials poses other cumulatively serious impacts.

2185 Nor is there discussion of the environmental impacts associated with the extensive mining activities associated with dam construction.

2011 There is no discussion of the nature of vegetation that may be present on the gravel bars that would be mined for the TSP and 200-year plan.

**RESPONSE:** Text has been added to reflect these comments. Information on the preferred borrow site, now specified as the Old Cool Quarry, can be found in Chapters 2 and 7 in the EIS/EIR, and in Appendix M.

2011 The description of all of the vegetation types found in the upper American River canyon cannot be adequately described in one paragraph. There is no description of dominant subcanopy and understory species.

2263 There is almost no attempt in Appendix Q to quantify existing vegetation. Table 1 fails to reflect the proper parameters of a synecological characterization. How is it possible to identify any vegetation change model through the use of flood tolerance date? This report relies on generalizations unsubstantiated assumption, and undocumented evidence.

**RESPONSE:** The table entitled Summary of HEP Covertypes Information for the Upper American River describes the vegetation types by FWS HEP cover types. Canopy and understory species are discussed here. The table is located in the Fish, Vegetation, and Wildlife Chapter of the EIS/EIR.

326	604	103	713	553	1077	1588
283	709	41	496	839	1003	314
389	366	347	85	884	947	26
562	452	410	123	236	1186	1801
531	474	539	538	346	1144	1396
611	719	293	607	608	852	1082
627	612	614	704	483	1089	916
1224	560	791	557	119	1261	1409
872	823	850	1771	1431	1429	1376
1244	1609	1174	892	1204	948	1124
1843	1412	974	879	949	1066	1255
1403	1652	1394	832	2177	1173	1143
1427	1132	1216	1228	1001	1404	1131
804	1413	1430	1703	1667	1598	1402
997	1753	1145	818	1239	828	829
1004	974	926	1088	1147	918	1381
1669	923	955	885	886	1984	956
1080	1544	1406	1665	1625	1761	1392
1635	1522	1084	1398	1259	1579	1141
1003	994	2045	2022	1006	2046	2054
2067	928	954	1222	1238	356	1401
1504	1746	1136	1137	1593	1654	1741
1865	1982	1527	1528	1529	1530	1531

Common Comment #15: The detention dam would result in great losses and/or destruction of wildlife, and wildlife habitat, and canyon ecosystem.

**RESPONSE:** Please refer to the revised discussion of Impacts and Mitigation for Selected Plan in the Fish, Vegetation, and Wildlife in Chapter 7, of EIS/EIR. The flood control-only detention dam is designed to retain water only in connection with high flows in the

North and Middle Forks of the river. Inundation of the canyon upstream from the dam will be periodic and temporary. In most years there would be no water stand for any period. The frequency of inundation in those years is dependent on future storms and floodflow frequency. In any given year storms may or may not occur of a magnitude to cause inundation above the normal high water zone of the canyon. Reference the Selected Plan Chapter of the Main Report and to Chapter 7, Fish, Vegetation, and Wildlife, on the elevation, probability and duration of inundation for the Selected Plan.

Potential impacts from the Selected Plan were analyzed by the FWS, State of California and Corps. The various habitats in the study area were classified as cover types such as riparian, Chaparral, oak woodland, etc. Impacts to all of the habitat types and their associated wildlife and vegetation were considered by both analyses and are detailed in Chapter 7, Fish, Vegetation, and Wildlife, and revised Inundation Study, Appendix Q.

128 Flooding the canyon will kill trees, wildlife and cause  
324 landslides.  
434  
777

1174 The FWS predicts a significant impact on vegetation and habitat as a result of erosion and landslides triggered by the periodic flooding.

1354 Inundation will destroy vegetation cause erosion, and then destroy wildlife habitat.

1759 Flooding of the canyon would degrade vegetation and wildlife habitat by killing trees and causing landslides.

2157 The construction and operation of this dam would cause many significant adverse environmental impacts. Fluctuating flood water levels behind the dam would increase erosion and landslides, destroy or degrade vegetative communities, and devastate important fish and wildlife habitats.

1934 State how and include siltation impacts, landslide, water inundation, etc. on how the vegetation would be affected by the project.

RESPONSE: Chapter 7, Fish, Vegetation, and Wildlife, discusses potential impacts associated with this project (see response discussion above). Information pertaining to slope stability (landslides) can be found in the Special Topics Section in the Main Report and in Chapters 7 and 8 in the EIS/EIR. Additional

information on upper canyon impacts is included in the revised Inundation Study, Appendix Q.

1806 Page 8-16 discussion of historic mining in the American River does not discuss the use of mercury in the placer mining process and the adverse impact of this practice to the riverine environment.

2254 An analysis to consider the downstream effects of the potential for the bioaccumulation of heavy metals (used in the processing of gold-bearing mine tailings) by fish, wildlife and humans should be included.

**RESPONSE:** The use of mercury in the placer mining process that occurred in the Auburn portion of the project area is discussed in Chapter 5, Hazardous and Toxic Waste, and in Chapter 6, Drainage and Water Quality.

1118 There is a very serious inability in this document to resolve disparity between experts on the effects of this project on wildlife.

2185 The environmental analysis attempts to minimize the impacts of the Auburn Dam alternatives on the upstream canyons. FWS has identified major upstream impacts in its DCAR, requiring substantially greater mitigation than proposed by the Corps. Of particular concern is the DEIS's treatment of habitat that the FWS concluded will be lost as a result of upstream impoundments.

**RESPONSE:** Chapter 7, Fish, Vegetation, and Wildlife, discusses the methodologies and approaches to impact analysis in the Auburn area by the FWS and Corps. The results of ongoing intra-agency coordination on these impacts between the draft and final EIS/EIR are reflected in the above-mentioned chapter. Congress has directed in the Fish and Wildlife Coordination Act that the Corps determine what mitigation recommended by FWS is justifiable and include only this in its recommendations to Congress. This is reflected in the Feasibility Report and EIS/EIR.

1826 Will DWR's geology and soils study of the canyons be incorporated into the FEIR? Will topsoil erode and become incapable of revegetation?

2157 The mining of construction material poses other cumulatively serious impacts.



**RESPONSE:** Information from DWR's studies on geology and soils in the Auburn area is included in the Main Report, Special Topics Section, and in the EIS/EIR, Fish, Vegetation, and Wildlife Chapter. The DWR report is included in the Geotechnical Appendix M.

1891 Wildlife benefits from the lake aren't considered. Wildlife comes back very, very rapidly. The benefit from the wildlife and the microclimate is improved.

1918 How can a multipurpose dam enhance wildlife?

**RESPONSE:** A description of the American River watershed study can be found in the Project Description and Rationale Chapter of the EIS/EIR and in the Selected Plan Chapter of the Main Report. The Selected Plan does not include a lake at the Auburn site. A flood control-only facility is proposed that will detain water only for a few days in severe storm events. Under normal conditions, the river will continue past the dam much as it does now. For a detailed description of the Selected Plan, please see the above-mentioned chapters.

2151 Animal species which depend on riparian woodlands for cover, food, breeding or rearing young should be identified and population impacts assessed in the draft EIS/EIR document.

1894 When you report that these are desolate canyons and inaccessible, I know you haven't done your homework. Your report fails to adequately address wildlife issues.

2216 The entire impacts discussion is inadequate because potentially affected plant, fish, and wildlife species have not been adequately identified.

**RESPONSE:** Information on animal species residing in various habitats in the study area can be found in the Fish, Vegetation, and Wildlife Chapter (Chapter 7). The summary of HEP Cover Type Information tables detail the cover types in the study area as determined by the FWS and normal wildlife associate with each habitat type. Impact assessment for federal projects is done in conjunction with the FWS under the Fish and Wildlife Coordination Act, generally using the habitat evaluation procedures methodology. This process is a habitat-based approach and not a population-based methodology.

- 2254 The density of plant species sensitive to inundation should be ascertained by any standard plant community survey technique and some attempt to assess the overall environmental impact of their loss to the plant and animal community should be made.
- 2215 Wildlife discussion fails to provide any meaningful information on the species potentially affected by this project. Please list species, describe their range, provide information on their significance, and describe their habitat. In short, please provide information required under CEQA and NEPA.
- 2213 This section fails to meet CEQA and NEPA requirements because site specific studies are necessary to accurately and completely document and evaluate a project's potential impacts. Without this site-specific information, the entire analysis, assessment of impacts and proposed mitigation is flawed.
- 2243 Because of the lack of site-specific studies in the fish and wildlife analysis, it is impossible to accurately analyze the cumulative impacts of the losses expected to these resources.

RESPONSE: Project impacts in the Auburn area were analyzed by the U. S. Fish and Wildlife Service and Corps. Information pertaining to these analyses can be found in Chapter 7, Fish, Vegetation, and Wildlife, and in the Environmental Appendices Q & M. Study constraints precluded detailed laboratory and/or field experiments; however, both analyses utilized available information in pertinent literature and examination of the study area, anecdotal evidence at other sights periodically inundated and personal observations and professional judgements. A habitat-based approach using qualitative data is taken, rather than a detailed resources inventory as suggested, and is considered sufficient.

- 2255 The diversity of the canyon's biological communities, evident in viewing the north and south-facing canyon walls, as well as by descending or climbing the canyon slopes are virtually ignored in the draft EIR/EIS.

RESPONSE: Chapter 7, Fish, Vegetation, and Wildlife, of the EIS/EIR contains a table entitled Summary of HEP Cover Type Information for the Upper American River. This table provides information on the cover types of the Auburn area the FWS used in its impact analysis. Two distinct cover types are North Slope Oak Woodland and South Slope Oak Woodland. Additionally, the impact analysis performed by Fugro-McClelland (Appendix Q) also estimates acres lost according to the above-mentioned cover types used by the FWS including the North and South Slope designations.

2255 Also ignored are the overall long-term impacts of frequent or occasional inundation on plant and animal populations.

10 Conclusion regarding inundation impacts to vegetation erroneous and inconsistent with FWS. Gradual degradation with each inundation mask long-term habitat loss.

132 DEIS/EIR does not disclose the adverse effect that inundation will have on long-term ecological productivity.

2264 The DEIS relies on a report that fails in its attempt to support the conclusion that periodic flooding will have little or no impact on natural vegetation. The data as presented might support that contention, but only because is incomplete, misleading, or just plain wrong.

**RESPONSE:** Both of the impact analyses done for the EIS/EIR contain impact estimates over the life of the project. The FWS HEP procedure estimates impact over the 100-year life of the project (see Auburn HEP appendix Q) and Fugro-McClelland's analysis also estimates impacts for the life of the project (Appendix Q). Both of these studies are discussed in Chapter 7 of the EIS/EIR, Fish, Vegetation, and Wildlife.

2255 The contention that dam construction impacts would be negligible is incorrect. The USBR has a responsibility to revegetate these impacts upon the deauthorization of their Auburn project. Please provide information on the ongoing USBR mitigation plan.

2157 The mining of construction material poses other cumulatively serious impacts.

**RESPONSE:** Impacts and mitigation discussions regarding the mining of construction maintenance has been further refined in the EIS/EIR. The USBR mitigation of past construction activities is not part of this project and so is not discussed. Disposal of spoils under the proposed flood control project may provide some restoration value.

2256 This discussion does not report the results of the FWS analysis of inundation effects.

2 Wide discrepancy among information extracted from FWS reports to determine resource values identify impacts and develop mitigation. Failure to incorporate FWS recommendations for impact assessment and mitigation is a principal concern.

2012 The discussion of inundation impacts on vegetation should also present the findings by the U. S. Fish and Wildlife Service investigation provided in Appendix Q. The source of the discrepancy between these studies should be discussed and a rationale provided for choosing the conclusions of one study over the other.

2005 We are concerned because you have chosen to ignore or discount the majority of impacts identified by FWS.

**RESPONSE:** The Fish, Vegetation, and Wildlife Chapter includes results and mitigation recommendations for both the FWS and Corps impact analysis. Chapter 7 presents both FWS results and mitigation for the December 1990 analysis and for the February 1991 Analysis. Any differences between the analyses included in the EIS/EIR is discussed fully in Chapter 7.

2256 Please provide FWS' disagreement with your determination of indirect impacts.

**RESPONSE:** Text has been added to reflect this comment in Chapter 7, Fish, Vegetation, and Wildlife.

6 Project impacts within borrow areas to wildlife and mitigation measures not discussed. Location and extent of borrow sites from herbivores, fungi or other pathogenic organisms.

**RESPONSE:** The updated inundation analysis located in Appendix Q discusses potential losses from pathogens and other indirect or secondary losses due to inundation.

1992 Need more focus on potential adverse impacts of the no-action on wildlife within 110,000-acre American River floodplain. Even temporary flooding could have immediate and long-term impacts on diversity of wildlife due to drowning. Forage for birds and small animals would be inundated and unavailable. Prey species such as small rodents, invertebrates, would be lost to the food chain. Predator species will find food foraging extremely difficult.

**RESPONSE:** Please refer to Appendix B, Plan Formulation, for a more detailed discussion of the no-action alternative.

1933 USF&WS HEP cover types does not include riparian scrub-shrub. This is false. Why no pool-riffle habitat consideration for aquatic habitat?

**RESPONSE:** Chapter 7, Fish, Vegetation, and Wildlife, discusses HEP cover types for the upper American River. FWS conducted separate fishery studies for the upper American River area outside the HEP analysis. They can be found in Appendix R.

1933 In the DEIS it states that the contractor could not identify any wetlands above the high water mark in the upper American River area. This area should be resurveyed and maps and data sheets included.

1934 Seeps, springs, small ponds and pools all would meet the federal definition of wetlands or waters of the U. S. Therefore, wetlands exist above the 950 elevation.

2214 Did the Corps contractor look for jurisdictional wetlands above the high water mark? The report says it didn't identify any but didn't say if they looked.

**RESPONSE:** The flood control pool elevation of inundation with the Selected Plan is 868.5. The surface area is 5,100 acres to elevation 923.7. Therefore, any wetlands above the 950 elevation are not in the project area and will not be impacted. Surveys that were done were designed primarily to review potential impacts from gravel extraction from the Middle Fork bars and were concentrated in the lower elevations. Wetlands occurring above the high water and in the project boundaries were assumed not to be impacted as water would be periodically added to existing wet areas for a short amount of time and no filling of wetlands would occur. We do not anticipate any additional surveys for this planning report.

2135 An assumption is made that flooding in the upper American River canyon due to the 200- and 400-year projects would not occur during growing season. But some canyon species are shown to grow as early as mid-January (p. 8-32). Furthermore, the probability of late-season warm tropical storms causing floods as late as April and May should be considered.

**RESPONSE:** A complete updated discussion of inundation effects on the growing season is discussed in the analysis and included in Appendix Q. Variables such as growing seasons for canyon species and late season storms are discussed and considered in the analysis.

2132 Discussions of fishery and wildlife impacts fail to address impacts to migration and other movement within the canyon, which may be blocked by the flood control dam. Temporary impacts of construction on wildlife are arbitrarily considered insignificant. More complete information on current conditions at the damsite would be helpful. Possible indirect impacts due to changes in species composition and loss of soil should be addressed.

**RESPONSE:** Text has been added to Chapter 7, Fish, Vegetation, and Wildlife, to reflect this comment.

2113 Revision is needed to clarify the sources and methods used to assess impacts to fish, vegetation and wildlife by the FWS.

**RESPONSE:** Text has been added to Chapter 7, Fish, Vegetation, and Wildlife, to reflect this comment.

2115 The proposed dam will be about 400 yards downstream of the existing Auburn Dam site. It is likely there will be some habitat losses. The Service will assess these habitat losses and include results in a final Coordination Act Report to the Corps.

**RESPONSE:** Text has been changed in Chapter 7, Fish, Vegetation, and Wildlife, to reflect this comment.

1950 Analysis of fish and wildlife impacts for the multipurpose dam is very short. Continuous inundation of 10,000 acres and temporary inundation of 4,000 acres deserves more than 1 page. Flora and fauna species must be identified and effects of loss of habitat determined or acknowledged.

**RESPONSE:** The Study Authorization under which the Corps is preparing this report contains the assumption that the multipurpose Auburn Dam, as previously authorized, will not be constructed. We believe that any conversion from the proposed flood control facility to a multipurpose dam would require Congressional authorization and separate environmental documentation. Impacts from a multipurpose dam were addressed in the Cumulative Impacts Chapter only and no further analysis is necessary at this time.

2109 The likely inundation impacts to wetlands and uplands are greatly underestimated. The Service estimated that significant losses of upland vegetation and wildlife habitat would be lost.

**RESPONSE:** Please refer to revised Chapter 7, Fish, Vegetation, and Wildlife, and Appendix Q for discussions of the augmented inundation studies.

2263 The literature on the ecology of riparian habitats within bottomland forests in the eastern U. S. is hardly comparable to the foothill region of the Sierra. McClelland's report data on flooding tolerances in Table 2 does not completely correspond to tolerance data in Walters, et al (1980). It should have been given careful consideration.

**RESPONSE:** Concur in part. Differences exist in metabolism in different plant families, and so do differences in tolerances to a variety of stressors. Nevertheless, the physical conditions are comparable.

2224 Regarding the analysis on page 34, in no case was there a conservative assumption on interpretation of research used which leads to an overestimate of impacts. To the contrary, quite the reverse appears to be the case. Levels of uncertainty are seriously heightened because impact predictions are seriously underestimated and the probability of actually realizing impacts greater than those predicted is very high.

**RESPONSE:** Please refer to Chapter 7 and to Appendix Q for a discussion of the augmented studies prepared for the Final Report. The Corps estimate of impact acres is higher than those estimated by the Fish and Wildlife Service in the final EIS/EIR.

2223 When dealing with inundation/evacuation events at specific elevations, the occurrences in all seasons should be considered. These tables (A-3 thru A-5) indicate that at an elevation of 520 ft. about 78 one-day events will occur in 100 years following by about 6.3 events at elevation 700 ft. If partial day events are included, it could number 120+ at 520 ft. and 8-10 at 700 ft. This is too high a short-term and long-term impact to be ignored as being low certainty.

**RESPONSE:** According to tables A-1 and A-5 in the Environmental Appendix ( the Inundation Impact Appendix). An elevation of at least 520 ft will be reached in the detention dam area for one or more days in about 78 year in a 100-year period out of 100-year (6.3) for at elevation 700 feet). In other words, depths would reach 520 feet and 700 feet for at least one day during the 1-2 year and 16 year events respectively.

An elevation of 520 feet is a water depth of about 21 feet above the channel bottom at the upstream face of the detention dam

(1) backwash pool of approximately 2,000 acres. It is acknowledged that partial day events would occur somewhat more often. However, vegetation inundation to elevation 520 feet or even higher water for duration less than about 7 days could not result in an overly significant impact on detention also vegetation mortality. As a matter of fact, an increase in frequency of near stream areas (elevation 520 feet) would likely result in an increase in riparian type vegetation.

2219 While observations are referenced, it is not evident that any detailed elevation transect assessments were made across the line of inundation at 716 feet to determine that there were or were not differences in plant species, etc. Any impact associated with the '82, 636 ft. event would have been masked by the '86 event. Therefore this assessment actually deals with only one, not four events as reported.

2219 Citing attempts to locate impacts to vegetation resulting from inundation behind cofferdam between 1978 and 1986, only two events of the four mentioned created inundation deep enough to exceed the scour zone of the 1964 dam failure. The total length of time was 5.5 days to create any impacts.

2219 It is concluded that because the plants cited on page 8 of McClelland's report can tolerate short duration inundation that they are tolerant to frequent, long duration and total submergence. This is a leap of logic unwarranted by the base field observations.

1967 USF&WS and Planning and Conservation League's comments to the Analysis of Potential Vegetation Mortality presented by the Corps in Appendix Q suggests that the Corps' assumption of little disruption of the canyon ecosystems is in error.

2114 Page DEIS 8-16, paragraph 2 - Further discussion and correction is needed here. FWS calculation of existing habitat was based on land surface area that supports wildlife, not reservoir surface area. Average slopes varied 30-60 percent, accounting for more land surface area. FWS used the same method to calculate mitigation area to ensure consistency.

2218 There is a short discussion on the photosynthetic activity periods of various plant types on page 7 of McClelland's report. This is an important point ignored in the impact evaluation.



2218 Contrary to the statement that increased soil moisture could increase average net photosynthesis, based on Corps hydrology, there should be no impoundment pool inundation without a heavy rainfall event which would bring soils to conditions between field capacity and saturation. There is no flood credit here.

**RESPONSE:** Please refer to the revised Inundation Study in Appendix Q and Summary in Fish, Vegetation, and Wildlife Chapter 7.

2215 What will happen to migrating waterfowl when the rice fields are reduced from 12,936 acres to 6,879 acres after the project? What will happen to black-shouldered kites and black-crowned night herons that roost at Fisherman's Lake after this valuable riparian and wetland habitat is destroyed by urban drainage?

2193 The comparison of alternatives from an environmental perspective is severely flawed. Impact measurement categories should not be limited to fisheries and wildlife habitat.

**RESPONSE:** Please refer to the revised Fish, Vegetation, and Wildlife Chapter (Chapter 7) and to the Growth-Inducing Impacts Chapter (Chapter 18).

2224 The comment that ample soil moisture may increase photosyntheses activity comes from reported findings that added moisture in drought conditions results in positive response by plants. This has no relationship to flood inundation in association with heavy rainfall events that would add considerable water to the soils of the Chaparral community.

2220 The highly quantified and unreliable field data regarding seedlings on page 17 credits soil moisture associated with the '86 event. After five days of heavy rains, were the soils at anything substantially less than saturation prior to inundation? Highly questionable logic, leading from an indefensible observation base equals nonsense.

2220 Depths of inundation relative to a bankfull discharge elevation may be a more useful approach to estimating "average" depth of inundation of vegetation. This should result in estimated depths on the high side as most vegetation should have basal elevations greater than the bankfull water surface elevation (see letter page 51, last paragraph).

2225 The report states that increased soil moisture could increase growth and survival of seedlings and young plants and slope

failures could bury seeds and improve regeneration. In fact, these soils should be at least at field capacity at the start of inundation meaning there would be no meaningful incremental addition of soil moisture due to inundation.

- 2225 Having an interval between 5 and 10 years between potentially viable seed crop generation is a very significant parameter when compared against predicted frequency of inundation events at varying elevations. It seems that only in the elevation bands with extremely rare inundation events would there be a great enough probability of regeneration to assume no change to occur.

**RESPONSE:** The point of the cited study is that some Chaparral species metabolize at peak rates when soils are at field capacity, and this is indeed relevant to conditions which will occur during and after heavy rainfall and inundation.

- 2222 This assessment (pages 23-31 of McClelland) ignores winter flood inundation death as a potential factor in changing vegetation characteristics; in favor of spring flood inundation during the main growth flush of these plants.

**RESPONSE:** The Fugro-McClelland report addresses winter flood inundation death and inundation during spring growth flushes by assuming some uncertain degree of mortality will occur and adding to the amount of mitigation recommended. See revised Inundation Study, Appendix Q.

- 2263 The McClelland-Leiser report is a glaring example of manipulation. This document fails to support its contention that "vegetation mortality... is not likely to be significant" (page 38, Appendix Q). It fails in three critical places: it does not adequately describe or quantify vegetation conditions; flooding tolerances are inaccurately cited and misleading; and the use of ACID-Keswick dry dam comparison is misleading.

- 2226 In every aspect, McClelland's report accepts assumptions and makes interpretations of field results and that of outside research in the light of underestimating observed impacts and overemphasizing flood impact conditions with regard to other sites and past events. It also underemphasizes the potential flood inundation conditions in the impoundment pool and underestimates the potential impacts.

**RESPONSE:** The cited study, taken together with information developed by FWS and augmented material on vegetation and wildlife,

paints a fair picture of vegetation conditions, flood tolerance of various vegetation types, and provides the best available information on a reservoir type which is not otherwise well studied. See revised Inundation Study, Appendix Q.

2224 The McClelland report implies that about 5 years without inundation is needed for a newly germinated plant to survive subsequent flooding. This analysis does not apply to Chaparral because it is active in the winter flood-prone season. There is no justification for assuming the evergreen oak woodland and conifer are any less susceptible to winter total-plant submergence. The very basis for this assessment approach is extremely suspect.

RESPONSE: Saturated conditions in the root zones of Chaparral, evergreen oak woodland and conifer woodland have occurred in the past and will occur in the future during extended periods of heavy precipitation without the project, yet these plant communities persist. Therefore, there is uncertainty regarding the level of tolerance they possess. The McClelland analysis assumes that a certain level of mortality occurs. Given more precise data, a different estimate would result, but more precise data are not available. In recognition of the uncertainty, a doubling of the expected impact area is proposed as mitigation. See the revised Inundation Study, Appendix Q.

2224 If the assessment assumptions are accepted, the use of a 100-year assessment timeframe is not acceptable. At some point in the frequency return occurrence regime of inundation, flooding will be too regular to allow newly germinated plants from entering the less susceptible age classes, a general overstory decline will follow, and a basic plant community shift would occur.

RESPONSE: It is considered likely that riparian species in the flood pool area will experience favorable conditions for establishment and growth more often under a regime of slack water inundation. As a result this plant community will likely expand at the expense of Chaparral and woodland. See the revised Inundation Study, Appendix Q.

2225 The regeneration assessment ignores the real impact element on seed germination of seed floatation. With the major floodflow and inundation season beginning in November and extending through February, the seed crops of oak and conifer plant communities have just been deposited. Inundation will float

these seeds and a large percentage can be expected to leave the canyon during evacuation.

- 2225 There is no evidence to support the position of beneficial aspects of seed burial. It presumes that the level of site disturbance is that degree which would be beneficial to seeds while being insignificant in respect to impacts on mature vegetation. In fact, the report states that not enough is known about slope failures to determine frequency or extent of such failures.

**RESPONSE:** We concur in part with this comment. Sound acorns sink, so these should not be significantly affected in their distribution by periodic slack water inundation. Sound conifer seeds may be floated away during flood episodes, but will be redeposited to some extent during drawdown in a pool which has been depleted of seed predators. It is not clear whether survival of either plant community will be harmed as a result. See revised Inundation Study, Appendix Q.

- 2263 The McClelland-Leiser report makes the insupportable claim that the physiological effects of inundation will be minimal because they take place in the "dormant" season.

**RESPONSE:** The claim that inundation during the dormant season has little effect is supported in Section 4.0 of McClelland Consultant's report. See the revised Inundation Study, Appendix Q.

- 2223 A seven-day duration event has not been demonstrated as appropriate with respect to physiological parameters. Impact evaluations should be based on one-day inundation event frequency/elevation relations as presented in the appendix of McClelland's report.

- 2222 Both the '82 and '86 events had inundation durations below the 600 ft. elevation of 2 and 3.5 days. These durations do not demonstrate that a seven-day inundation threshold is justified. Similarly, the observation that canyon live oaks survived floodflow events does not mean that some individuals have not survived, shifting the live oak community structure.

**RESPONSE:** The choice of seven-day inundation duration is no more or less arbitrary than a one-day inundation duration for estimating physiological stress. Where dormant season inundation effects have been looked for, no effect was readily observable in areas inundated for 2 to 3.5 days. It is thought to be a reasonably conservative timeframe to predict measurable mortality given the

lack of evident mortality under lesser lengths of inundation. See revised Inundation Study, Appendix Q.

2220 Conclusion of no adverse impacts is not associated with any reported assessment techniques or accessible data. It is not possible to evaluate the assessment technique and observation validity given the reported information. Combining cursory site reviews with exaggerated assumptions should not be considered a conservative analytic approach.

RESPONSE: Adverse impacts are recognized as possible (see McClelland's report, Sections 6.3, 6.4), even though observers have been unable to demonstrate them. The impact analysis presumes they may occur and proposes an adaptive management plan for mitigation if they do in fact occur. See revised Inundation Study, Appendix Q.

2224 No evidence of increased riparian zones have been presented. No evidence of increased seed germination success has been presented.

RESPONSE: Riparian growth in detention basins is a major maintenance concern because of rapid establishment and growth. See photos in report and basin of Live Oak Dam. See revised Inundation Study, Appendix Q.

2222 Table 7 of McClelland's report makes a critical assumption that 74 percent of the impoundment pool area is composed of plant cover types dominated by evergreen plants. However, Table 2 notes that there is no data for flood inundation tolerance for canyon live oak (the most significant evergreen species in pool area).

RESPONSE: The 74 percent figure is not an assumption but an estimate based on planimetric measurements performed by FWS. The assumption is made that inundation mortality for live oaks is approximately the same as for Douglas fir seedlings.

2225 Field observations do not reveal any adverse impacts on regeneration but these statements of observation are not accompanied by any data that indicated where these observations occurred and what features were observed. In no way are the observations explained or substantiated and cannot

be reviewed or evaluated. Their assertions cannot be accepted as either complete or accurate.

**RESPONSE:** See McClelland's report, illustrations and text for sites (Appendix Q).

2220 Inundation study of the lower American (page 23) by McClelland is flawed. Use of topo map in Figure 14 is misleading because topography at the time of the '86 event is not reflected by it. This outdated map cannot be used to estimate reliable surface elevations from point to point in the area. It is also useless to estimate depth of inundation using this topo map.

**RESPONSE:** Figure 14 in McClelland's report is provided for illustrative purposes, not to estimate elevations or depths of inundation. See revised Inundation Study, Appendix Q.

2221 Results of above data are applicable to conditions of moderate duration inundation events that submerge portions of tree trunks. They are not applicable to situations where total tree inundation can be expected with crown submergence varying from 10-400 feet, and submerged for relatively long periods of time or shorter periods like 1-3 days.

**RESPONSE:** Data regarding plant mortality under partial plant inundation are not perfectly representative of mortality when mature plants are inundated by 400 feet. These partial inundation data have been used only because there have been few opportunities to gather data on deeper inundation. See revised Inundation Study, Appendix Q.